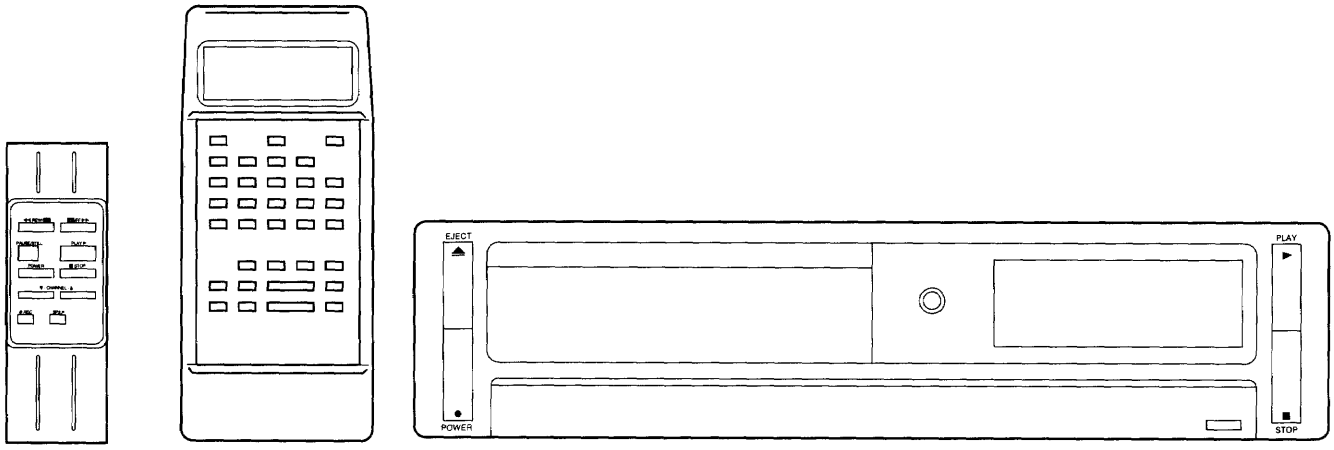
BAIRD

VIDEO RECORDER

VC152LX



SECTIONS	PAGE
1. Main Board and Mechanism Part Locations	2 ~ 5
2. Mechanism Dismantling and Re-accembling	6 ~ 42
3. Block Diagrams	43 ~ 54
4. Mechanism Maintenance and Checking	55 ~ 60
5. Mechanism Adjustment	61 ~ 72
6. Electrical Adjustment	73 ~ 80
7. Electrical Parts List	81 ~ 93
8. Mechanical Parts List	94 ~ 99
9. Schematic Diagrams and Printed Circuit Boards	101 ~ 138

SERVICE MANUAL

TPH1698

PRODUCT SAFETY NOTICE

The components designated by a symbol (⚠) in this schematic diagram designates components whose value are of special significance to product safety. Should any component designated by a symbol need to be replaced, use only the part designated in the Parts List. Do not deviate from the resistance, wattage and voltage ratings shown.

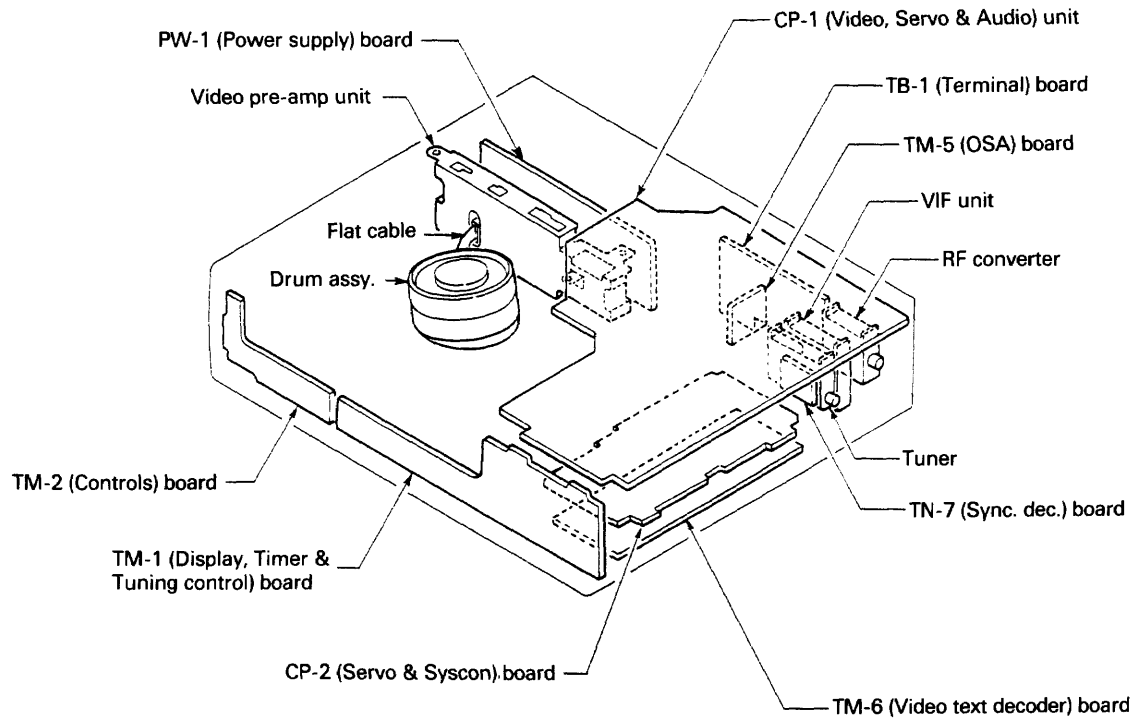
NOTES:

1. All resistance values in "OHMS" unless otherwise noted. (K = 1,000, M = 1,000,000)
2. All capacitance values in "μfd" unless otherwise noted.
   p = pico farad
3. All inductance values in "mH" unless otherwise noted.
   μ = micro henry

1. Main Board and Mechanism Part Locations

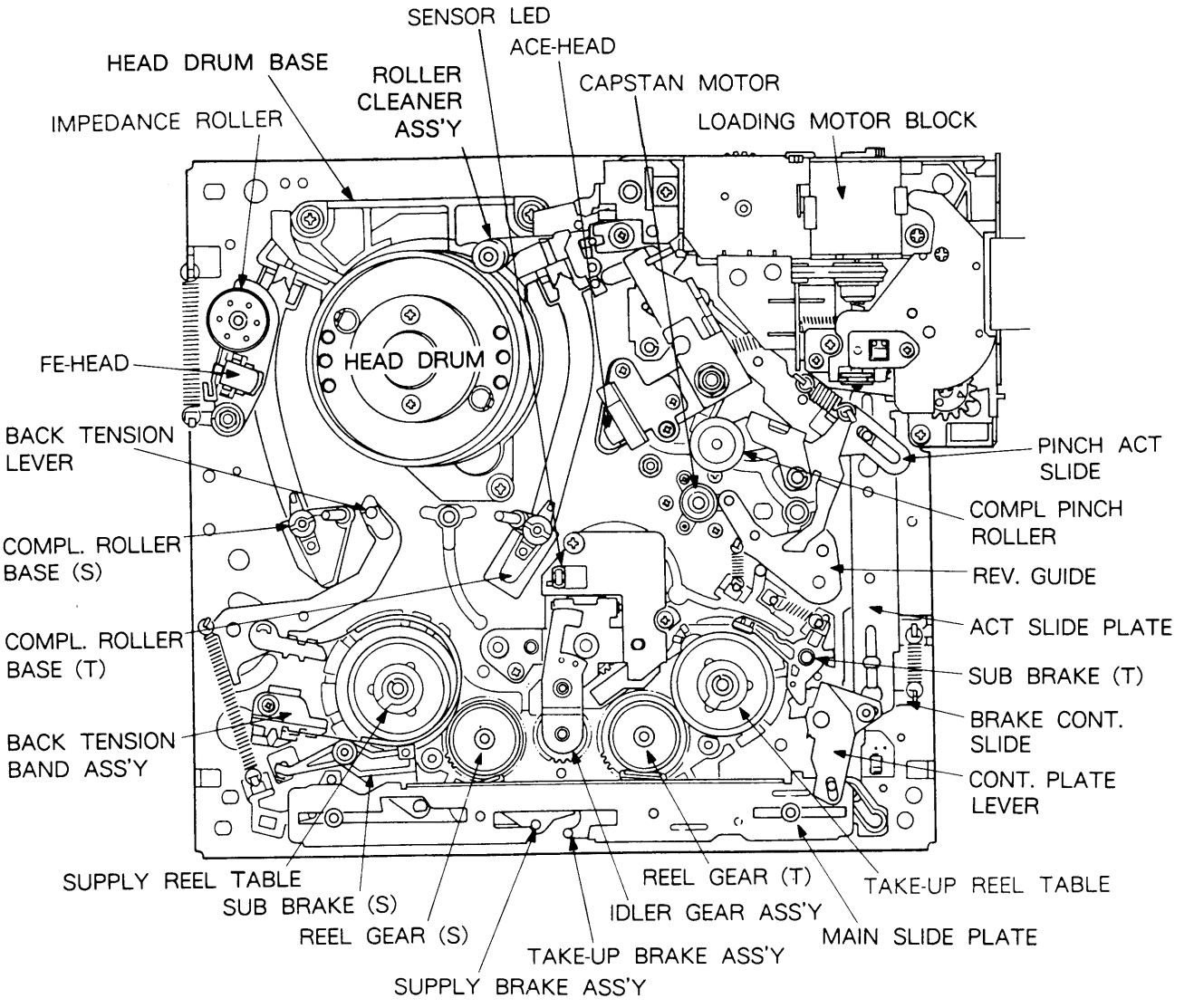
1-1. MAIN BOARDS

L13L040

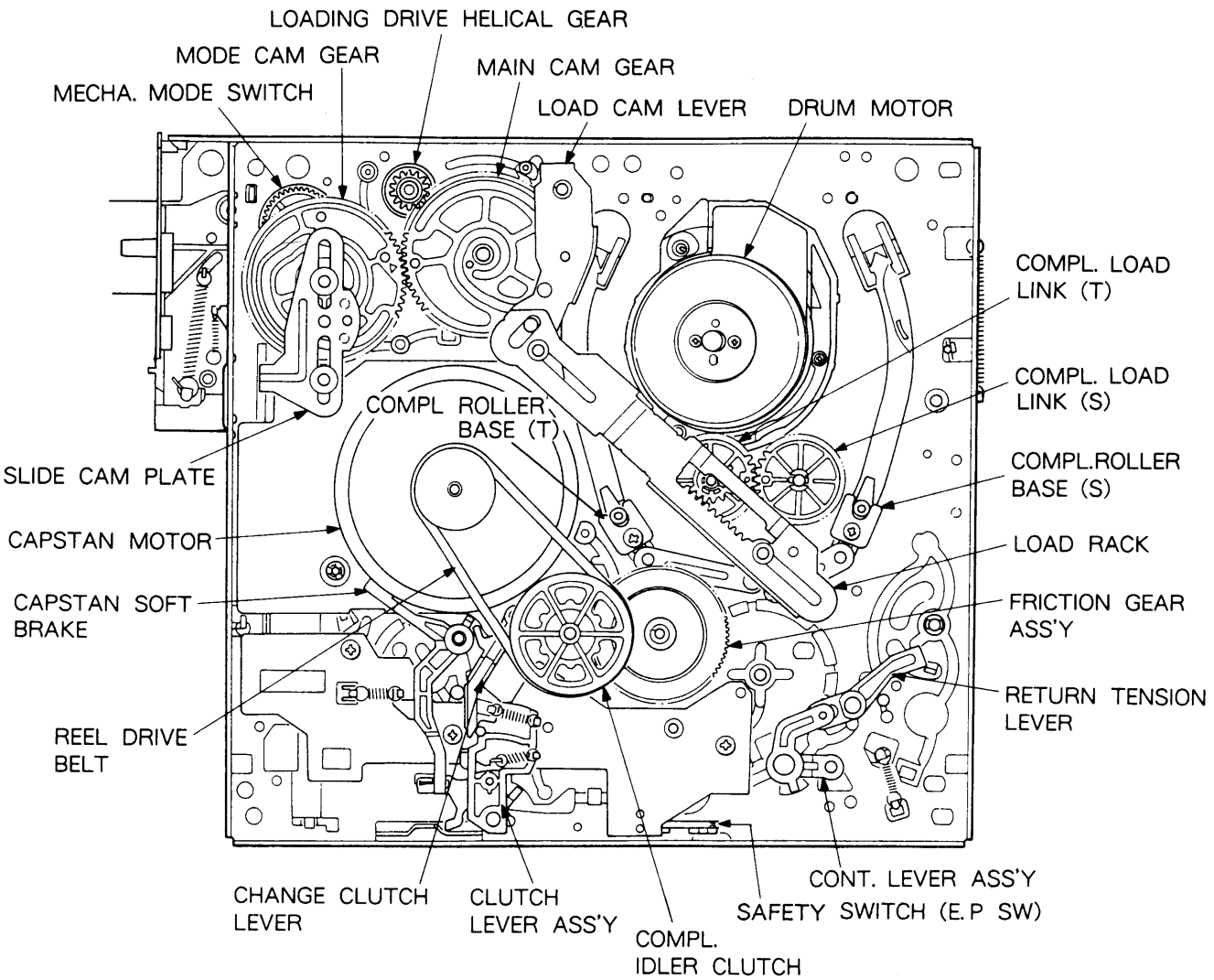


1-2. MAIN MECHANISM PARTS LOCATIONS

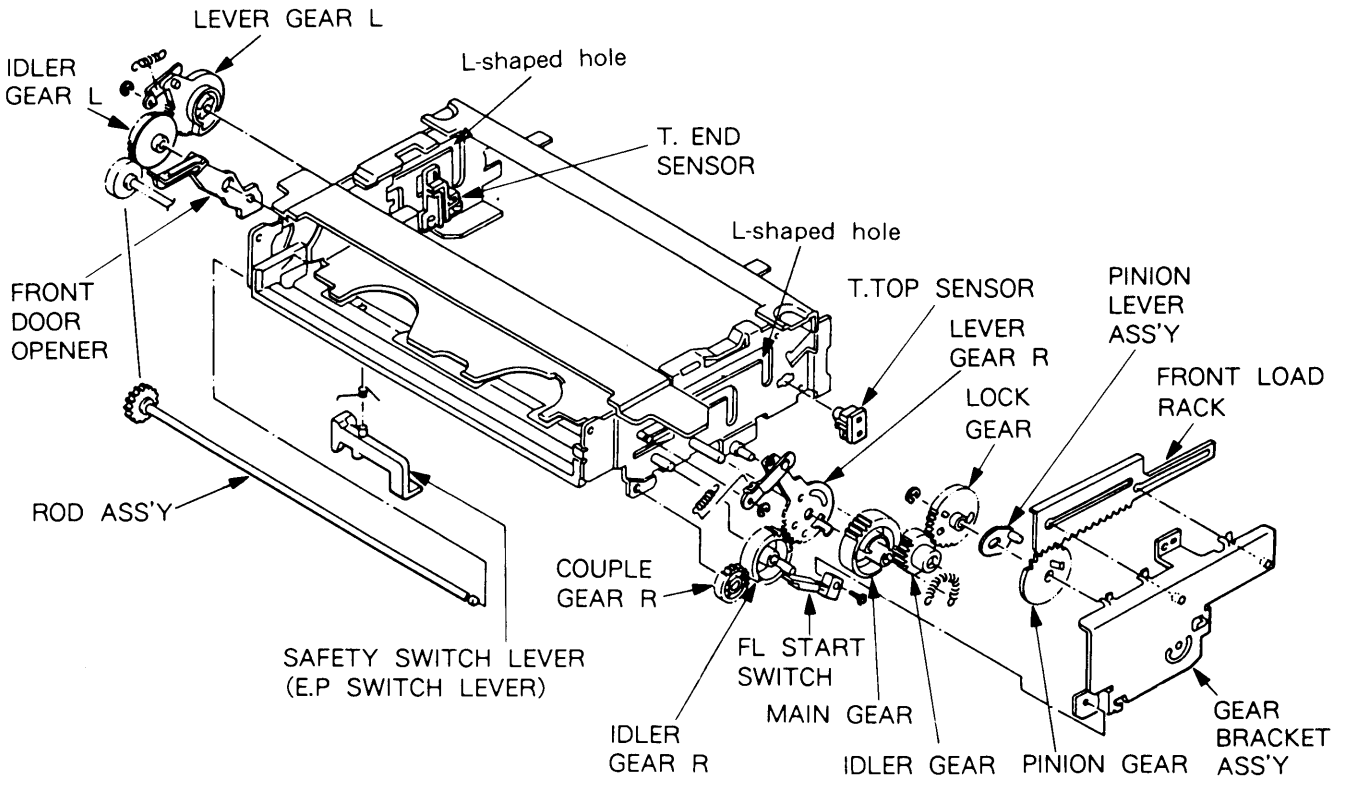
(1) Mechanism Assembly (Top View)



(2) Mechanism Assembly (Bottom View)



(3) Front Loading Mechanism



2. Mechanism Dismantling and Re-assembling

2-1. MECHANISM MAIN UNIT (See Fig. 2-1-1.)

1. Removal

1) Remove the connectors of the COMPL MC-3 and the COMPL HEAD BRACKET.
2) Remove the flexible cable ① connecting the COMPL CYLINDER to the PRE-AMP UNIT ③. (See Fig. A.)
3) Remove the two screws ②, then remove the PRE-AMP UNIT ③.
4) Remove the two screws ④, then remove the PRE-AMP BRACKET ⑤.
5) Remove the two screws ⑥.
6) Remove the three screws ⑦ and two screws ⑩, then lift up the mechanism main unit and remove it.
   Since the TRAY ⑧ obstructs removal of the two front screws ⑩, move the TRAY LOCK LEVER ⑨ in the direction of the arrow to unlock, then slide the TRAY ⑧ before removing the screws. (See Fig. B)

Note: Shape of the PRE-AMP UNIT ③ and the PRE-AMP BRACKET ⑤ differ depending on the model.

2. Remounting

1) Mount the mechanism main unit onto the chassis with the three screws ⑦ and two screws ⑩.
2) Tighten the two screws ⑥.
3) Mount the PRE-AMP BRACKET ⑤ with the two screws ④.
4) Mount the PRE-AMP UNIT ③ and the ground lug with the two screws ②. (some models are not provided with a ground lug.)
5) Insert the flexible cable ① into the connector of the PRE-AMP UNIT.
6) Connect the connectors of the COMPL MC-3 and COMPL HEAD BRACKET.

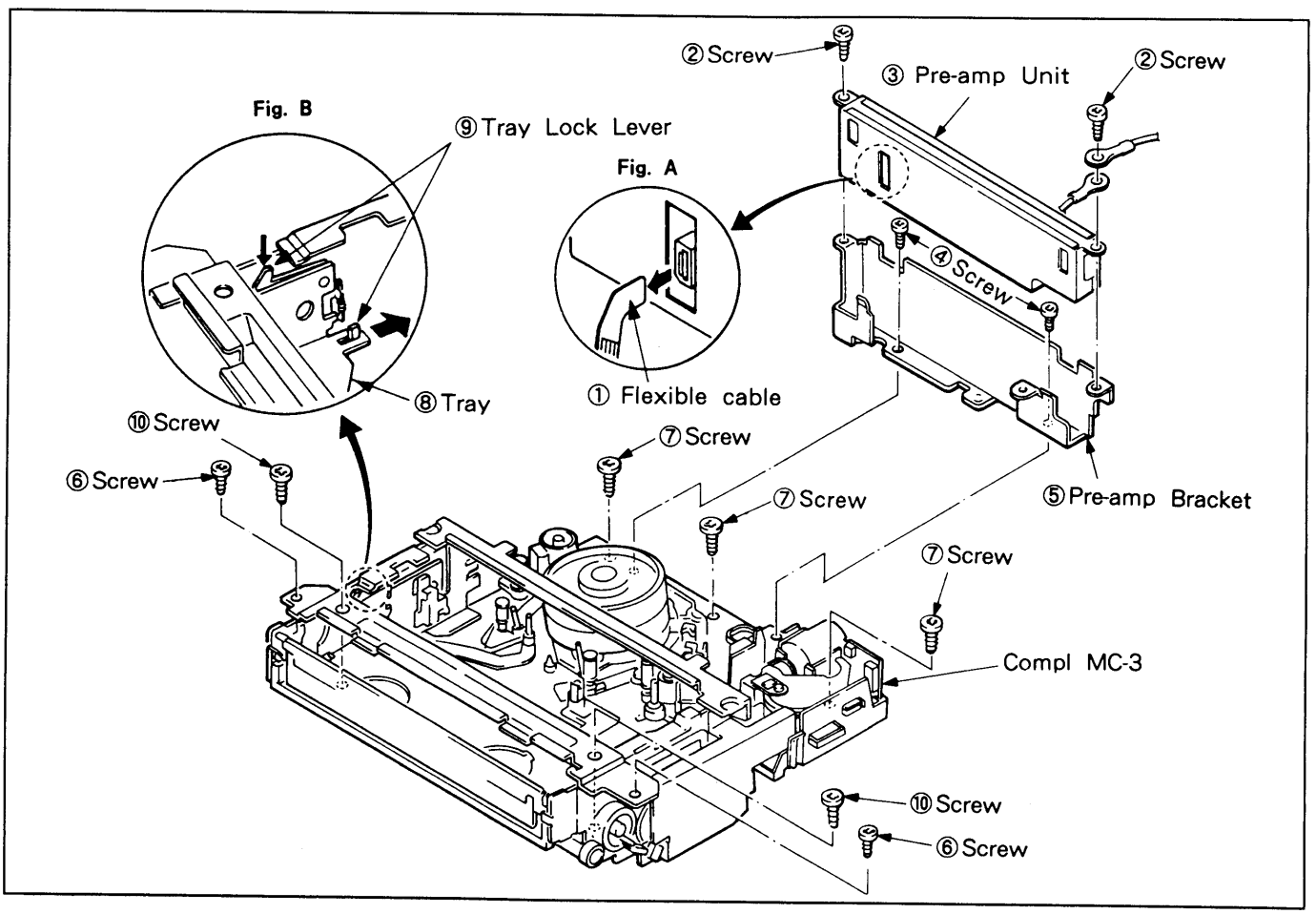


Fig. 2-1-1. Mechanism Main Unit

2-2. CASSETTE MECHANISM ASSEMBLY

2-2-1. CASSETTE MECHANISM (See Fig 2-2-1.)

1. Removal

1) Set the video main unit to the EJECT completed mode.
2) Pull out the connectors (6-PIN CONNECTOR connected to the system control circuit board, ACE HEAD CONNECTOR, and FTE HEAD CONNECTOR) from CASSETTE HOLDER.
3) Remove the two screws ①.
4) Remove the two screws ②.
5) Lift up the COMPL CASSETTE MECHANISM ④ back a little and remove the two hooks ③ on the front. (See Fig. B.) When doing so, make sure that the SAFETY SWITCH LEVER is not caught by the mechanism chassis.

2. Remounting

1) Set the chassis section mechanism to the EJECT mode with the mode selector (VHJ-0050) (looking from the top, align the EJECT mode positioning alignment hole ⑤ to the MOTOR HOLDER hole ⑥ as shown in Fig. A).
2) Set the COMPL CASSETTE MECHANISM ④ to the EJECT completed mode.
3) Mount the COMPL CASSETTE MECHANISM ④ onto the mechanism chassis, aligning it with the protuberance.
   Align the EJECT mode positioning alignment mark ⑧ to the △ positioning alignment mark ⑦. (See Fig. A)
4) Fix to the mechanism chassis with the two screws ②.
5) Fix to the chassis with the two screws ①.
6) Connect to the various connectors.

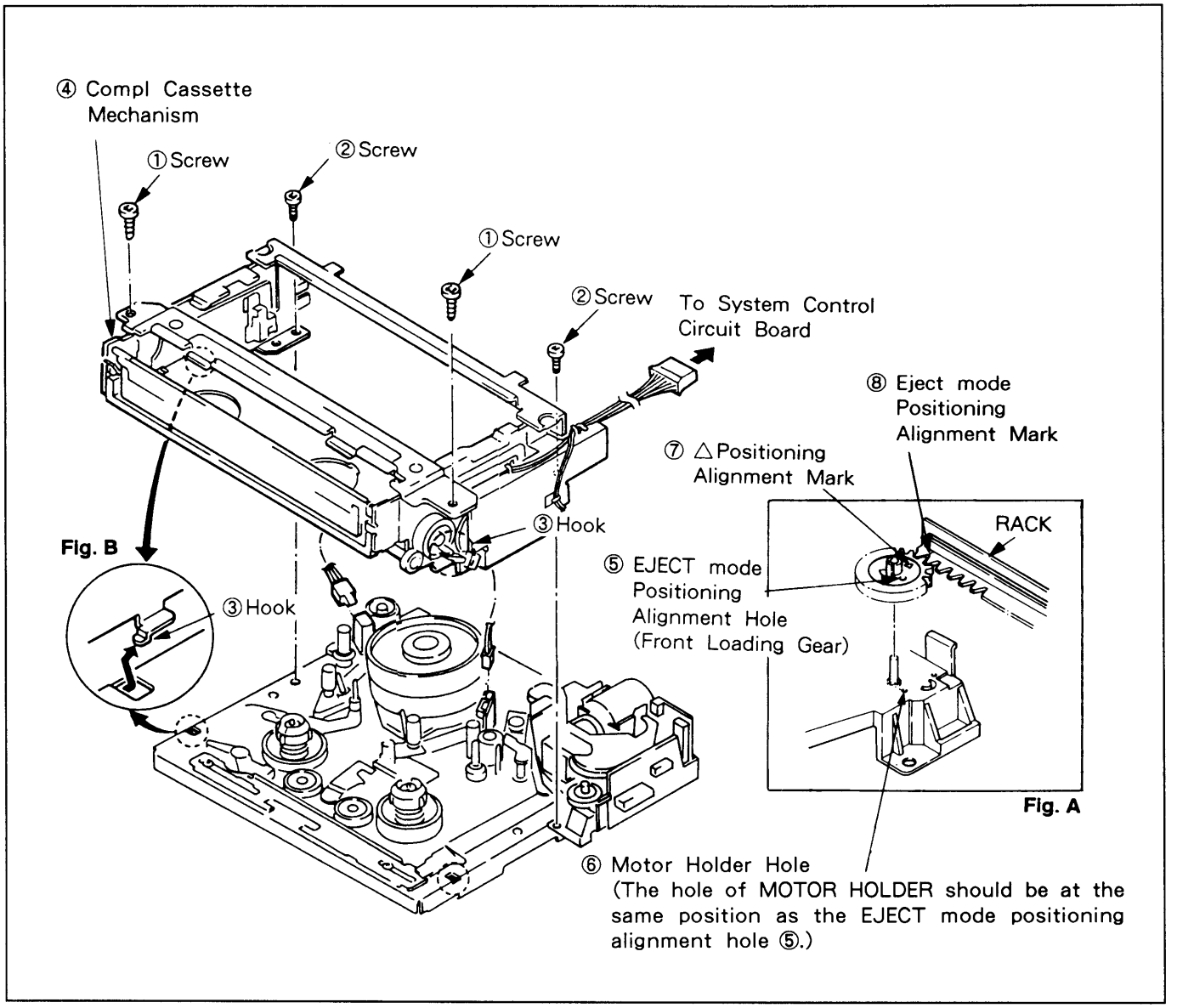

④ Compl Cassette Mechanism
① Screw
② Screw
① Screw
② Screw
To System Control Circuit Board
⑧ Eject mode Positioning Alignment Mark
⑦ △ Positioning Alignment Mark
③ Hook
RACK
Fig. B
③ Hook
⑤ EJECT mode Positioning Alignment Hole (Front Loading Gear)
Fig. A
⑥ Motor Holder Hole
(The hole of MOTOR HOLDER should be at the same position as the EJECT mode positioning alignment hole ⑤.)

Fig. 2-2-1. Cassette Mechanism

2-2-2. GEAR BRACKET ASS'Y (See Fig. 2-2-2.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the four screws ①, then remove the GEAR BRACKET ASS'Y ② as shown in Fig. A.
3) Remove the E ring ③, then remove the LOCK GEAR ④, the PINION LEVER ASS'Y ⑤, the PINION GEAR ⑥ and the RACK ⑦, in that order.

2. Remounting

1) Apply grease to the shaft ⑧ and the two pins ⑨ of the GEAR BRACKET ASS'Y.
2) Apply grease to the pin ⑩ of the PINION LEVER ASS'Y.
3) Apply grease to the toothed part of the RACK ⑦.
4) Fit the RACK ⑦ onto the two pins ⑨. Align the positioning alignment hole ⑪ to the positioning alignment hole ⑫ of the GEAR BRACKET.
5) Mount the PINION GEAR ⑥, PINION LEVER ASS'Y ⑤, and LOCK GEAR ④ in the shaft ⑧ in the order mentioned.
   Align the positioning alignment holes ⑬ of PINION GEAR and LOCK GEAR with the positioning alignment hole ⑪ of RACK at that time.
6) Mount the E ring ③ onto the shaft ⑧.
7) Set the GEAR BRACKET ASS'Y ② to the dowel and mount it using four screws ①.
   Align the positioning alignment hole Ⓐ of the IDLER GEAR with the positioning alignment hole Ⓑ of the SIDE BOARD as shown in Fig. 2-2-3 at this time.
   Also align the positioning alignment holes ⑬ of PINION GEAR and LOCK GEAR with the positioning alignment hole ⑫ of GEAR BRACKET by referring to Fig. 2-2-2. After mounting them, check to be sure that FL START SWITCH ⑭ is in the ON state shown in Fig. A.
8) Remount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

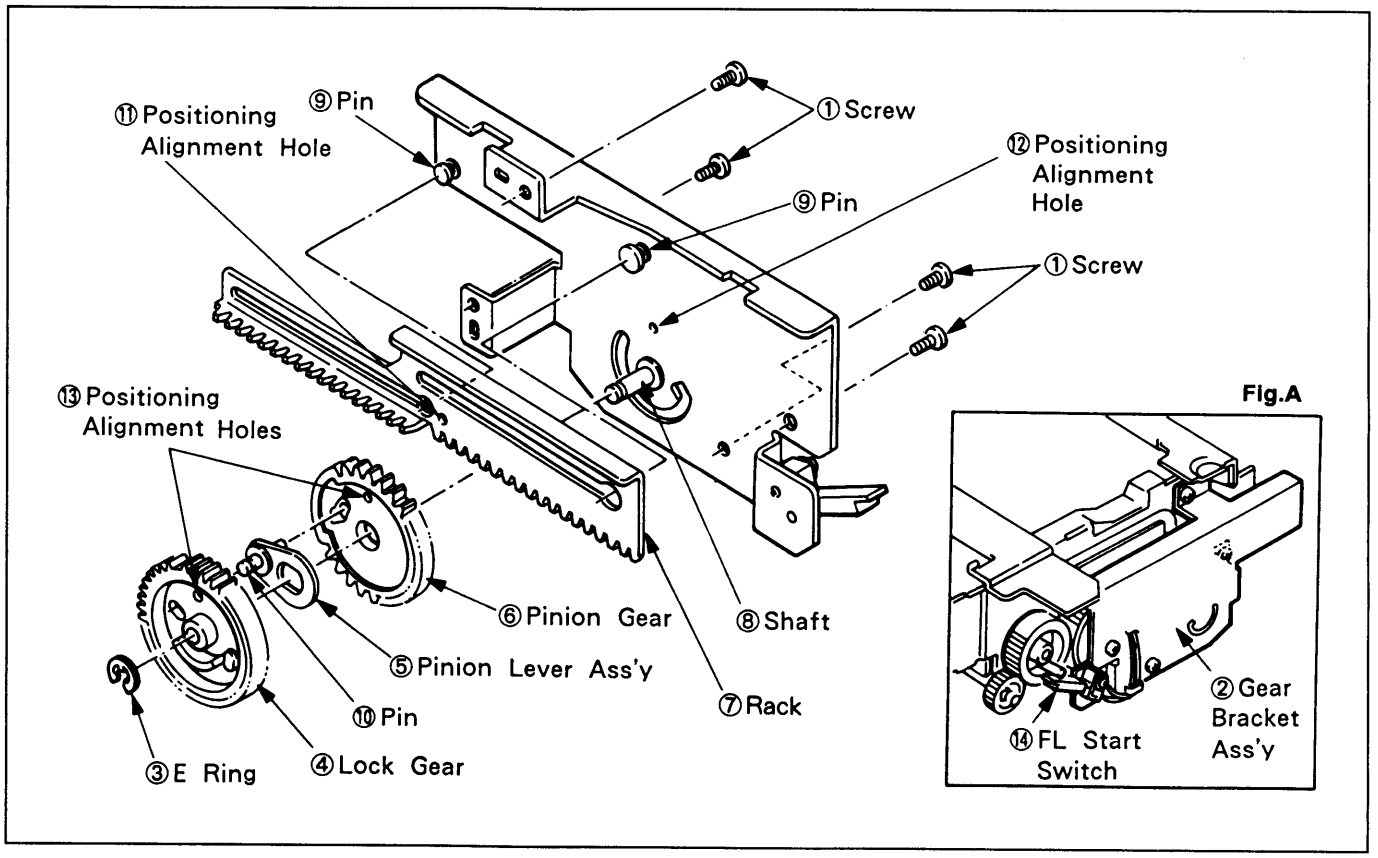


Fig. 2-2-2. Gear Bracket Ass'y

2-2-3. CASSETTE DRIVE GEAR (RIGHT) (See Fig. 2-2-3.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM and the GEAR BRACKET ASS'Y as instructed in 2-2-1. and 2-2-2., respectively.
2) Remove the IDLER GEAR ①.
3) Remove the SPRING COIL ②, then remove the MAIN GEAR ③.
4) Remove the E ring ④, then remove the LEVER GEAR ASS'Y R ⑤.

2. Remounting

1) Apply grease to gear parts that undergo friction.
2) Align the positioning alignment hole Ⓐ of IDLER GEAR ⑧ with the positioning alignment hole Ⓑ of SIDE BOARD.
3) Mount the LEVER GEAR ASS'Y R ⑤ onto the axles ⑪ and ⑫. Align with the IDLER GEAR ⑧ as shown in Fig. A.
4) Mount the E ring ④ onto the axle ⑫.
5) Mount the MAIN GEAR ③ onto the axle ⑪. When doing so, align with the IDLER GEAR ⑧ as shown in Fig. A.
6) Hook the SPRING COIL ② to the notch ⑬ in the MAIN GEAR ③ and the LEVER GEAR ASS'Y R.
7) Mount the IDLER GEAR ① onto the axle ⑭. When doing so, align with the MAIN GEAR as shown in Fig. A.
8) Mount the GEAR BRACKET ASS'Y and the COMPL CASSETTE MECHANISM as instructed in 2-2-2. and 2-2-1., respectively.

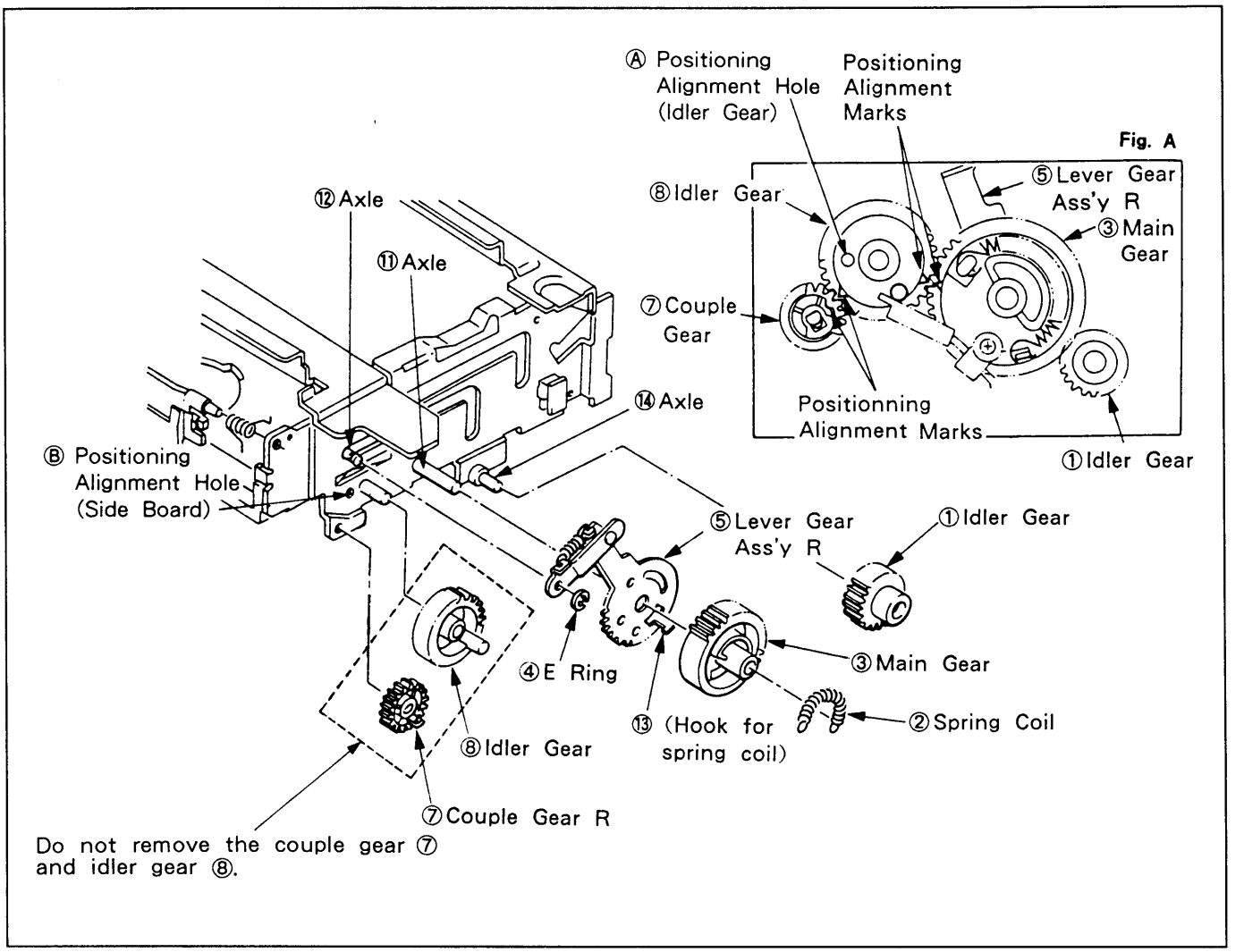


Fig. 2-2-3. Cassette Drive Gears (Right Side)

2-2-4. CASSETTE DRIVE GEAR (LEFT) (See Fig. 2-2-4)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the E ring ②.
3) Open the hook ③, then remove the LEVER GEAR ASS'Y L ④. Take care not to open the hook ③ too much, otherwise it may get deformed or broken. If it does, replace it.
4) Remove the SPRING COIL ⑤ from the LEVER GEAR ASS'Y L ④.

2. Remounting

1) Apply grease to the axle ⑨ and shaft ⑩.
2) Align with the COUPLE GEAR L ⑬ and the IDLER GEAR L ⑥ as shown in Fig B.
3) Hook the SPRING COIL ⑤ to the LEVER GEAR ASS'Y L ④.
4) Mount the LEVER GEAR ASS'Y L ④ onto the axle ⑨ and the shaft ⑩. Align with the IDLER GEAR L ⑥ as shown in Fig. B.
5) Mount the COMPL CASSETTE MECHANISM onto the chassis as instructed in 2-2-1.

Note: The end of the DOOR OPEN LEVER ⑦ leans against the front side of the CASSETTE DOOR ⑪ as shown in Fig. A.

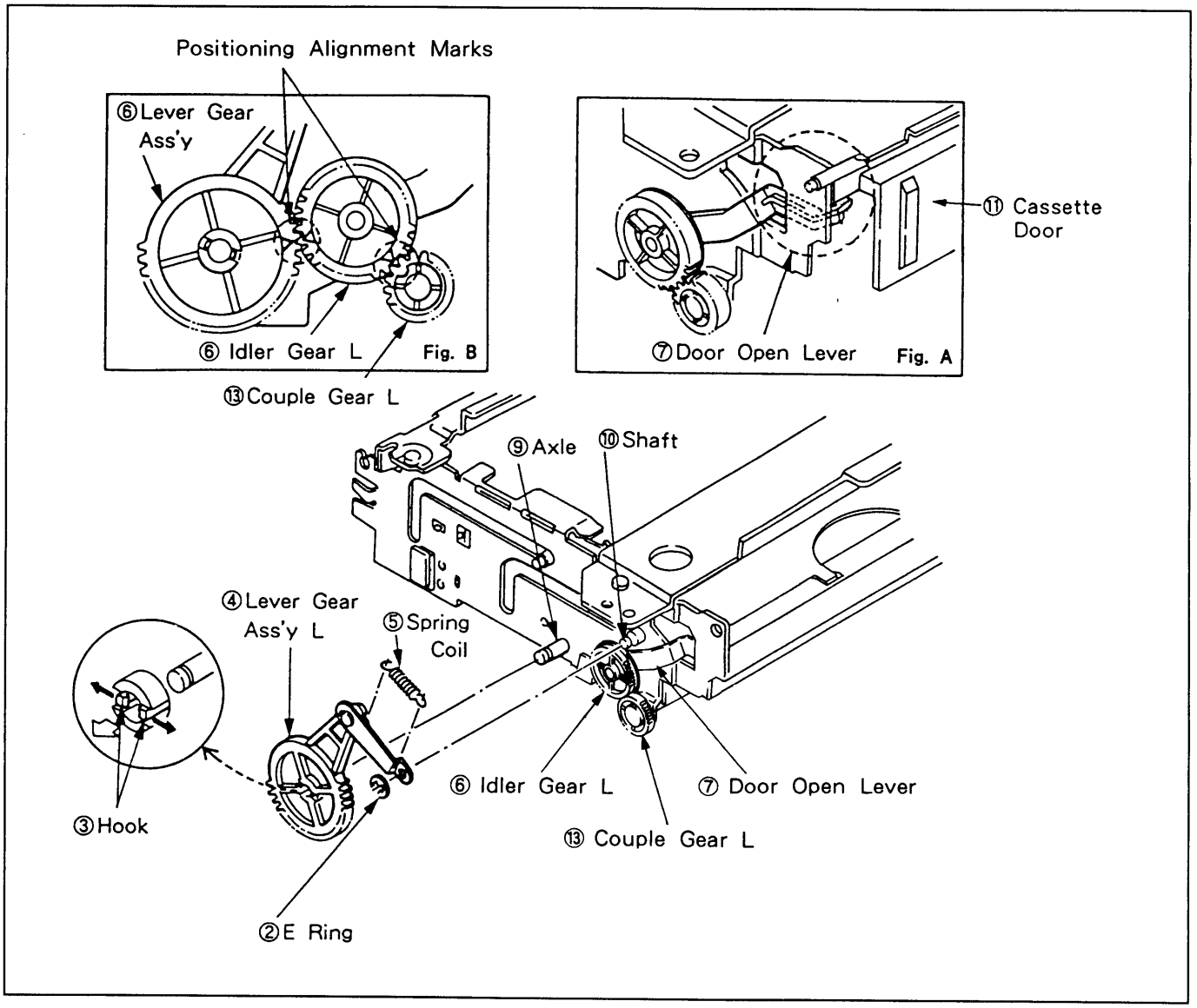


Fig. 2-2-4. Cassette Drive Gears (Left Side)

2-2-5. FL START SWITCH (See Fig. 2-2-5.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the screw ①.
3) Remove the lead wire of the FL START SWITCH ②.

2. Remounting

1) Solder the lead wire to the FL START SWITCH ② terminal.
2) Align the FL START SWITCH ② protuberance to the hole ⑤, then mount it onto the GEAR BRACKET ASS'Y ③ with the screw ①. Do it so that the FL START SWITCH ② is turned ON by holding the pin ④ of IDLER GEAR in the EJECT completed mode.
3) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

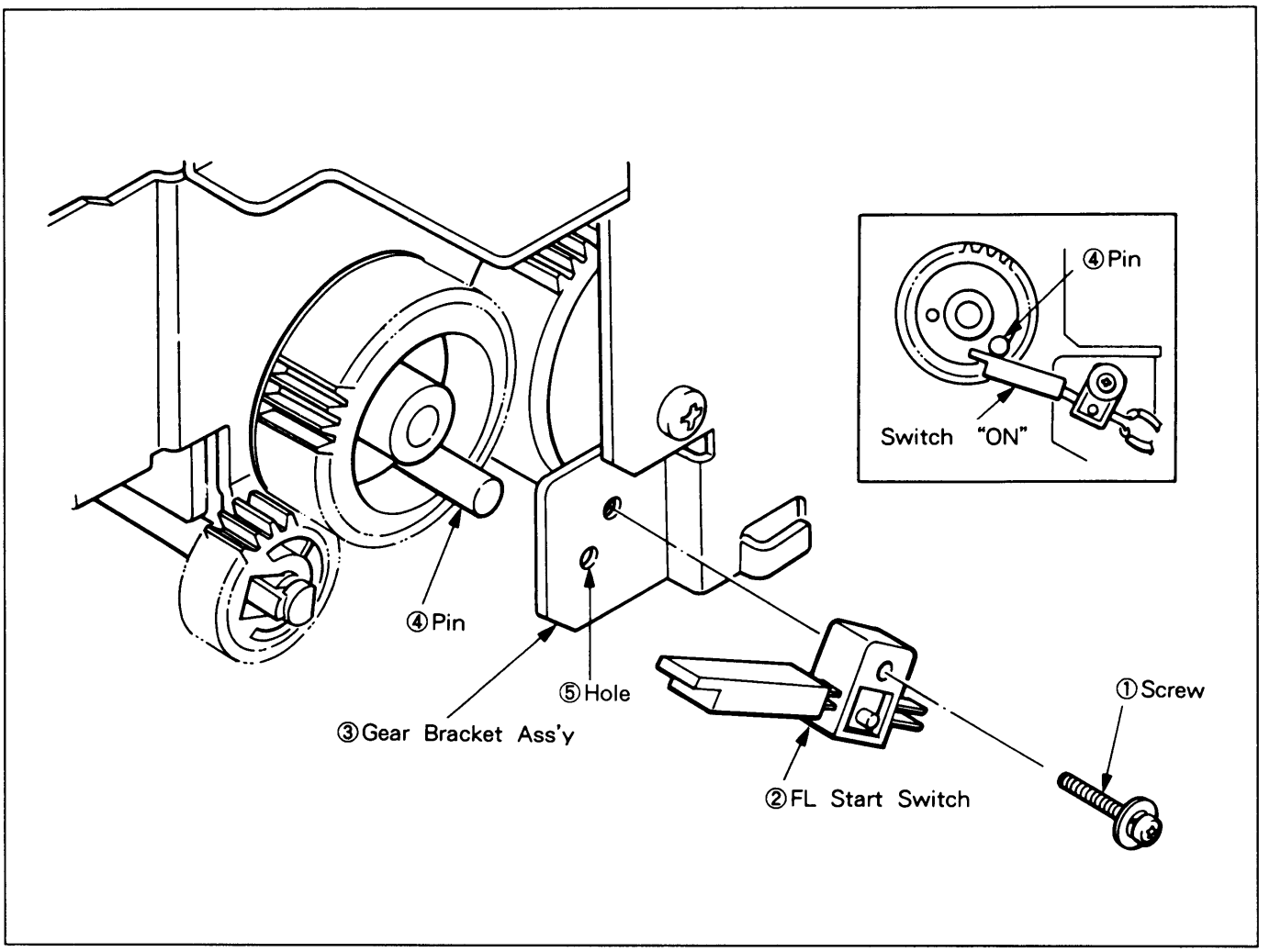


Fig. 2-2-5. FL Start Switch

2-2-6. T-TOP SENSOR, T-END SENSOR (See Fig. 2-2-6.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) When removing the T-TOP SENSOR, remove the GEAR BRACKET ASS'Y as instructed in 2-2-2.
3) Unhook the hook ① as instructed in Fig. A, then remove the LID ②. Take care not to push the hook ① too much, otherwise it may be deformed or broken.
4) Remove the photo transistors ③, then remove the lead wires.

Note: Mounting position of the transistor holder on the T-END SENSOR side is precisely adjusted at the factory, so never remove it from the COMPL CASSETTE MECHANISM.

2. Remounting

1) Solder the brown lead wire to the emitter side, and the red lead wire to the collector side of the T-TOP SENSOR photo transistor ③.
   Solder the orange lead wire to the emitter side, and the yellow lead wire to the collector side of the T-END SENSOR photo transistor.
2) Mount the photo transistors ③ onto their respective holders.
3) Mount the LID ② and fix it with the hook ①.
4) Mount the GEAR BRACKET ASS'Y as instructed in 2-2-2.
5) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

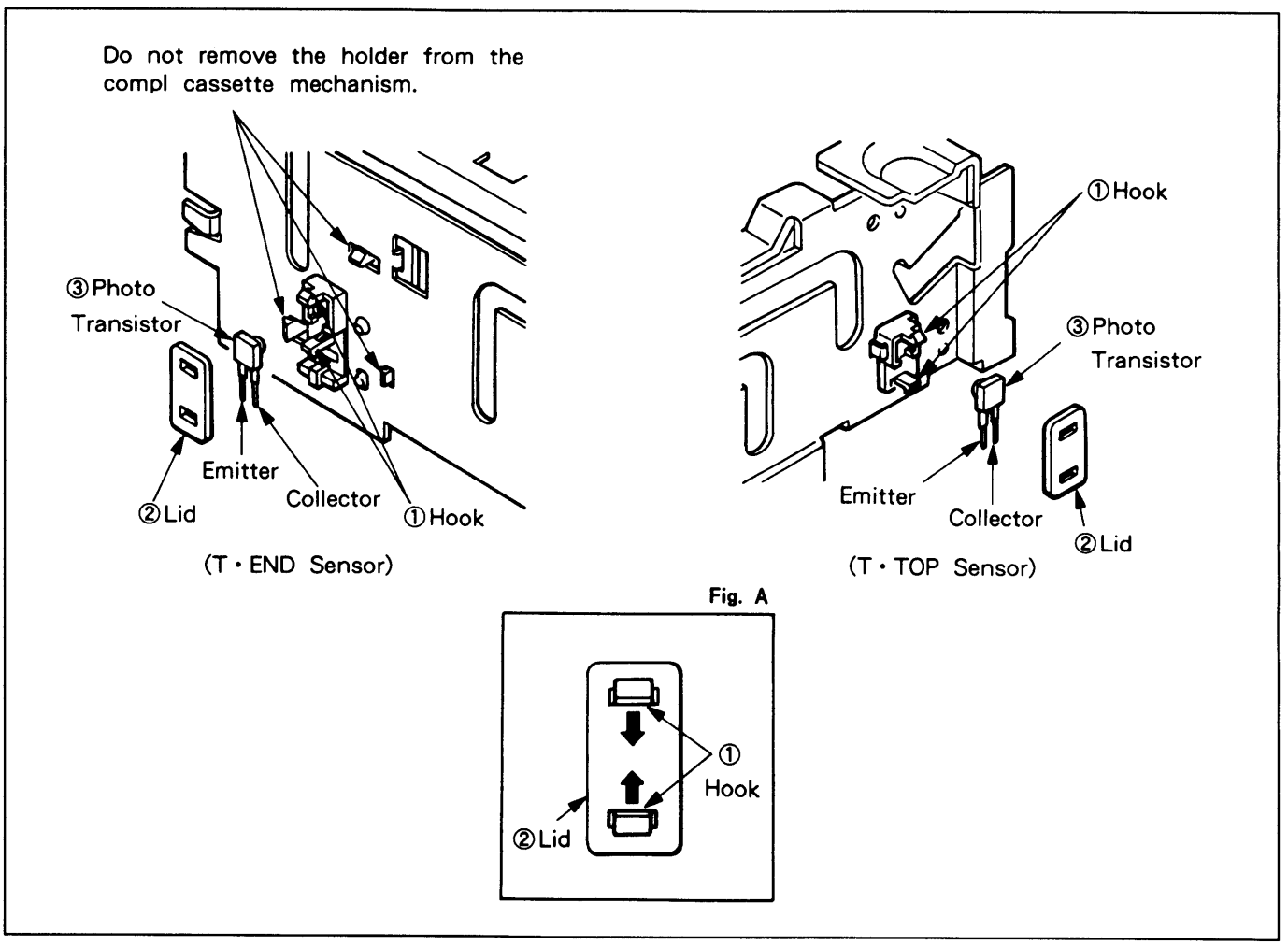


Fig. 2-2-6. T TOP Sensor & T END Sensor

2-3. COMPL HOLDER MOTOR (LOADING MOTOR BLOCK)

2-3-1. COMPL Motor Bracket

1. Removal

1) Remove the PRE-AMP UNIT and the PRE-AMP. BRACKET as instructed in 2-1.
2) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
3) Remove the two screws ① and the other one ⑩, then remove the COMPL HOLDER MOTOR ② (see Fig. 2-3-1.).

2. Remounting

1) Set the mechanism chassis to the INITIAL mode. In this mode, look at the mechanism chassis INITIAL mode positioning alignment holes ③ just from above and align the MAIN CAM ④ and MODE CAM ⑤ INITIAL mode positioning alignment holes as shown in Fig. A.
2) Set the COMPL HOLDER MOTOR ② to the INITIAIL mode with the mode selector (VHJ-0050). In this position, the FRONT LOADING GEAR △ positioning alignment mark ⑥ is aligned with the MOTOR HOLDER INITAL mode positioning alignment mark ⑦ (see Fig. B.).
3) Align the ROTARY SWITCH (mode detector switch) ⑧ with the INITIAL mode positioning alignment mark ⑨ (see Fig. C.).
4) Line up COMPL HOLDER MOTOR ② with PROTUBERANCE ⑪ and POSITIONING ALIGNMENT HOLE ⑫, and attach with two screws ① and one screw. (Refer to Fig. 2-3-1.).
5) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
6) Mount the PRE-AMP UNIT and the PRE-AMP. BRACKET as instructed in 2-1.

Note: Normal mechanism operation cannot be achieved if initial positioning of the MAIN CAM ④, the MODE CAM ⑤ and the ROTARY SWITCH (mode detector switch) ⑧ are not performed precisely.

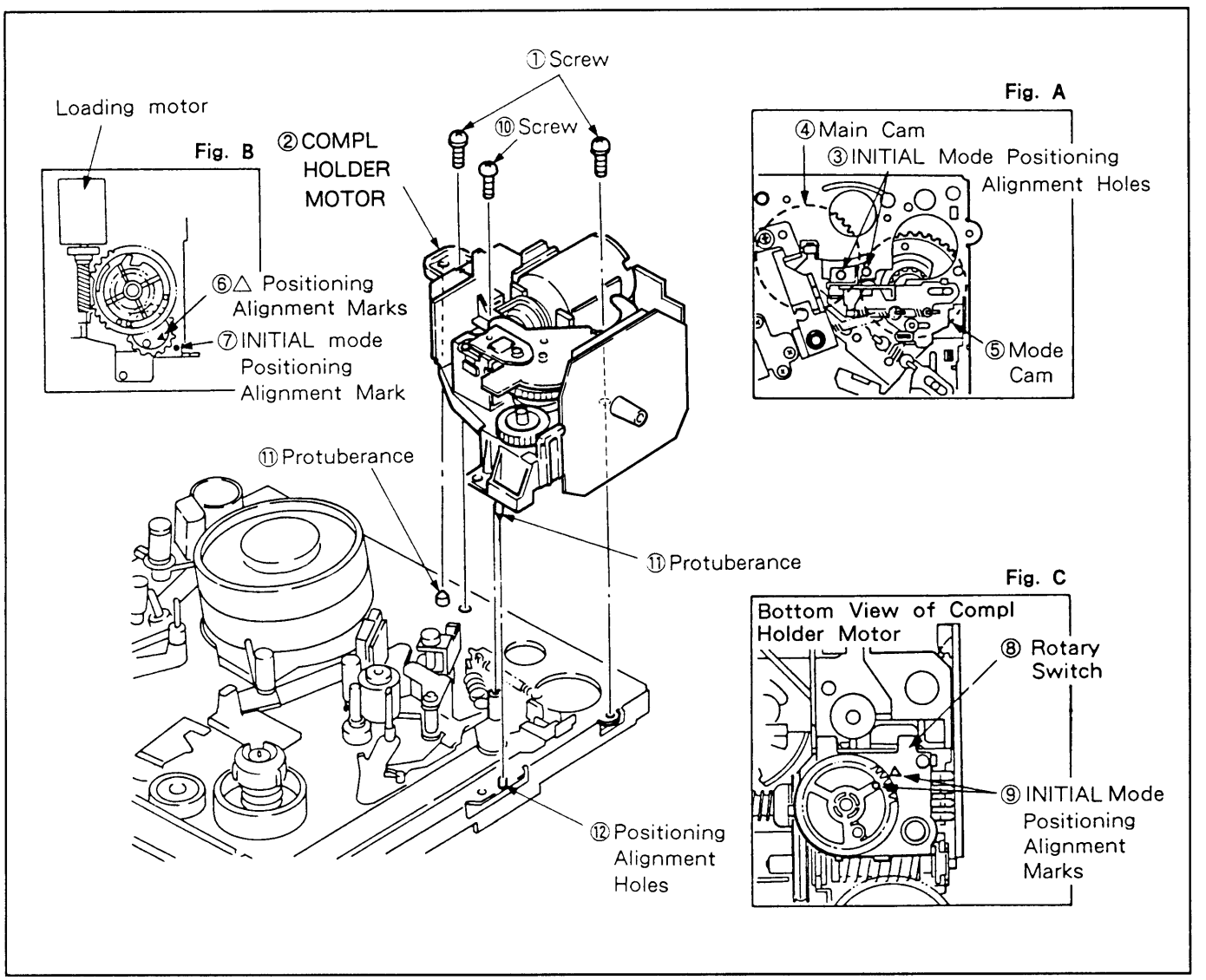


Fig. 2-3-1. Compl Holder Motor

2-3-2. Loading Motor (Refer to Fig. 2-3-2.)

1. Removal

LOADING MOTOR can be replaced after LOADING MOTOR BLOCK unit has been removed by referring to 2-3-1. The 1991 version of the mechanism allows LOADING MOTOR itself to be replaced without removing CASSETTE HOLDER BLOCK and LOADING MOTOR BLOCK. The following describes this procedure.

1) Use MODE SELECTOR (VHJ-0050) to set the mechanism to the INITIAL mode.
2) Remove the connector for DEW SENSOR connected to the MC-3 board ①.
3) Remove the three screws ② and remove the HOLDER BRACKET ④ with the FRONT WORM ASS'Y ③ still attached.
4) Remove the DAMPER ⑥ attached to the pulley of the LOADING MOTOR ⑤.
5) Remove the FRONT HELICAL GEAR ⑦ and WASHER ⑧.
6) Remove soldered LEAD WIRE from the terminal of LOADING MOTOR ⑤.
7) Remove the LOADING BELT ⑨.
8) Remove the LOADING MOTOR ⑤ by lifting up from the back terminal side.

2. Remounting

Before attaching the LOADING MOTOR ⑤ to the MOTOR HOLDER ⑩, confirm the DAMPER ⑪ and DAMPER ⑫ shown in Fig. 2-3-2. are in the proper position on MOTOR HOLDER ⑩.

1) The LOADING MOTOR ⑤ puts PROTUBERANCE ㉓ in the slit ㉔ of the MOTOR HOLDER ⑩. Further, mount the tap hole ⑬ at two points of the front pulley side so that the it is secured to the PROTUBERANCE ⑭ of the MOTOR HOLDER at two points.
2) Solder the lead wire from the MC-3 board to the LOADING MOTOR ⑤ terminal. (Solder the red lead wire to the positive terminal side.)
3) Hang the LOADING BELT ⑨ on the pulley.
4) After hanging the LOADING BELT ⑨ on the pulley, confirm that the mechanism unit is in the INITIAL mode. The initial mode is indicated by Fig. A of Fig. 2-3-2., and is the position in which INITIAL mode positioning alignment holes of the MAIN CAM ⑮ and MODE CAM ⑯ are lined up with the THROUGH HOLE ⑰ of the MOTOR HOLDER. If the INITIAL mode is not selected, adjust with MODE SELECTOR (VHJ-0050).
5) As shown in Fig. B, confirm the positions of the △ INITIAL positioning alignment mark on the FRONT LOAD GEAR ⑱ and INITIAL mode positioning alignment mark ⑲ position of the MOTOR HOLDER and the position relationship of the RACK ⑳.
6) Apply a light coat of grease to the entire sides of the AXLE ㉑ and FRONT HELICAL GEAR ⑦.
7) Attach the FRONT HELICAL GEAR ⑦ and WASHER ⑧ to the AXLE ㉑. As shown in Fig. C, the FRONT HELICAL GEAR ⑦ is attached so that the indent on the side is inside PIN ㉒ of the FRONT LEVER ASS'Y.
8) Attach the DAMPER ⑥ to the LOADING MOTOR ⑤ pulley.
9) The HOLDER BRACKET ④ is attached by engaging the FRONT WORM ASS'Y ③ with the LOADING MOTOR ⑤ pulley, and held in place with three screws ②.
10) Attach the connector of DEW SENSOR ㉕ to the MC-3 board ① and return the mechanism to the eject completion using MODE SELECTOR.

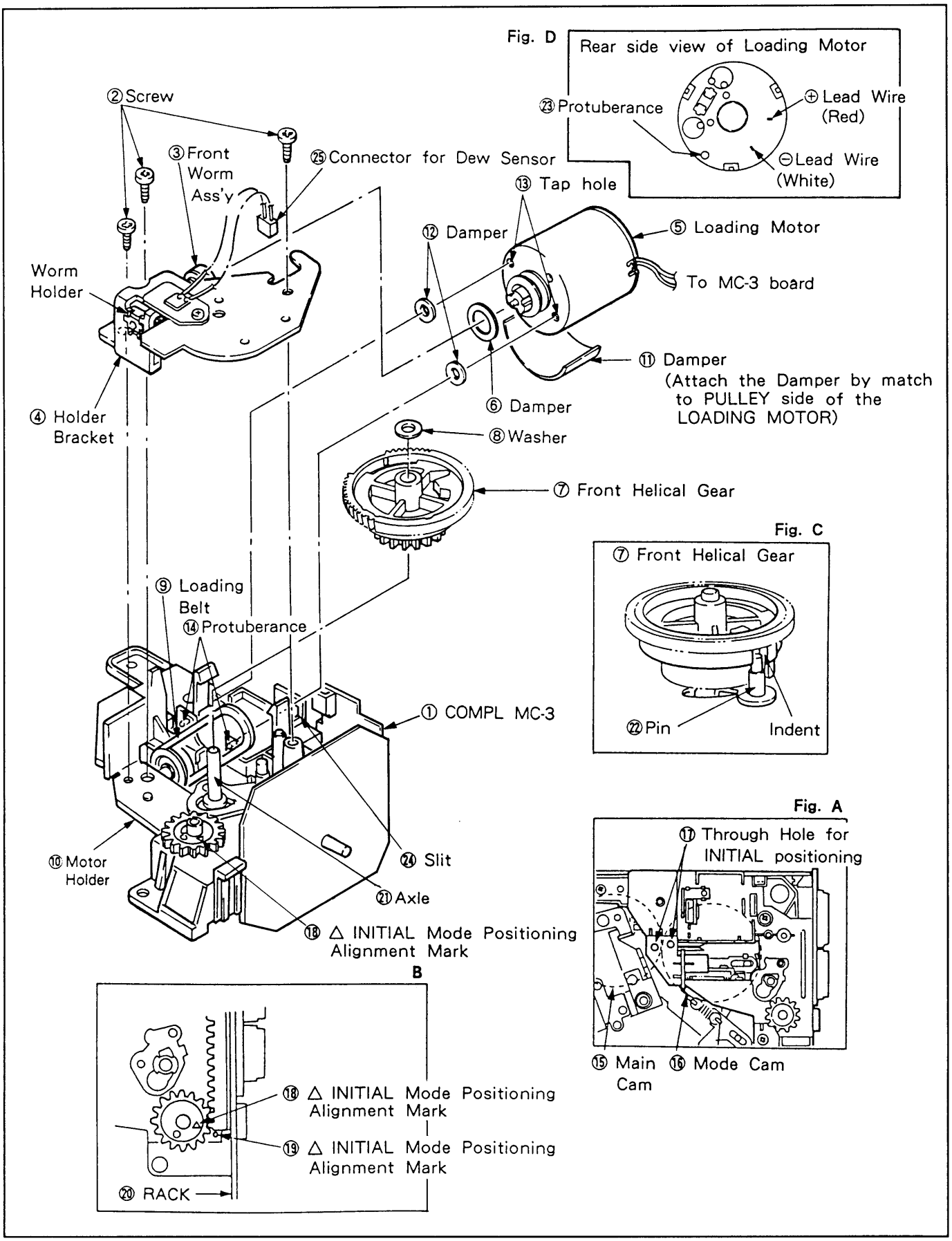


Fig. 2-3-2. Loading Motor

2-4. TAPE LOADING MECHANISM

2-4-1. MAIN PARTS OF THE TAPE LOADING MECHANISM (See Fig. 2-4-1.)

1. Removal

1) Remove connectors from the DRUM MOTOR board (SV-5).
2) Remove the three screws ①, then remove the REINFORCE BRACKET ②.
3) Remove the two special washers ③, then remove the LOAD RACK ④.
4) Remove the special washer ⑤, then remove the CAM LOAD LEVER ASS'Y ⑥.
5) Remove the special washer ⑦, then remove the MAIN CAM ⑧.
6) Unhook the LOAD GEAR T hook ⑩, then remove the LOAD GEAR T ⑨ as shown in Fig. A, with the SPRING COIL ⑪ and the LOAD LEVER ASS'Y T ⑫ attached to it.
7) Unhook the LOAD GEAR S hook ⑭, then remove the LOAD GEAR S ⑬ as shown in Fig. B, with the SPRING COIL ⑮ and the LOAD LEVER ASS' Y S ⑯ attached to it.

Note: Take care not to open the LOAD GEAR hooks too much, otherwise they may be deformed or broken. If they are, replace them.

2. Remounting

1) Apply grease to the hole ⑰ of the LOAD LEVER ASS'Y S ⑯, as shown in Fig. B.
2) Apply grease to the hole ㉒ of the LOAD LEVER ASS'Y T ⑫ as shown in Fig. A, and to the sections of the LOAD GEAR T ⑨ as indicated with an arrow in Fig. C.
3) Apply grease to GROOVE 1, GROOVE 2 and to the outer side of the MAIN CAM ⑧, shown in Fig. E.
4) Apply grease to the three oval holes of the LOAD RACK ④ as shown in Fig. D.
5) Apply grease to the outer surface of axles ⑲, ⑳, ㉖ and ㉘.
6) After assembling as shown in Fig. B, mount the LOAD GEAR S ⑬ onto the axle ⑲. Insert the ROLLER BASE S pin ⑱ into the hole ⑰ of the LOAD LEVER ASS'Y S.
7) After assembling as shown in Fig. A, mount the LOAD GEAR T ⑨ onto the axle ⑳. When doing so, align the INITIAL mode positioning alignment holes ㉑ of the LOAD GEAR S ⑬ and the LOAD GEAR T ⑨ to the INITIAL mode position. Insert the ROLLER BASE T pin ㉓ into the hole ㉒ of the LOAD LEVER ASS'Y T ⑫.
8) Mount the MAIN CAM ⑧ onto the axle ㉖. At that time, make sure that the INITIAL mode positioning alignment holes ㉕ of the MAIN CAM ⑧ and the MODE CAM ㉔ match the INITIAL mode positioning alignment holes ㉞ of the MECHANISM CHASSIS. Also check to be sure that the pin ㉗ of the CAM PINCH LEVER ASS'Y is put in the GROOVE 1 of the MAIN CAM as shown in Fig. E.
9) Mount the special washer ⑦ onto the axle ㉖.
10) Mount the CAM LOAD LEVER ASS'Y ⑥ onto the axle ㉘. Insert the pin ㉙ into the MAIN CAM GROOVE 2 as shown in Fig. E.
11) Mount the special washer ⑤ onto the axle ㉘.
12) Set the INITIAL mode positioning alignment marks ㉚ of the LOAD RACK ④ and the LOAD GEAR T ⑨ to the INITIAL mode position, and mount onto the two axles ㉛. Insert the CAM LOAD LEVER ASS'Y pin ㉝ into the hole ㉜.
13) Mount the two special washers ③ onto the two axles ㉛.
14) Mount the REINFORCE BRACKET ② with the three screws ①.
15) Insert the connector into the DRUM MOTOR board (SV-5).
16) Confirm that loading and unloading are performed smoothly.

Note: Be sure to perform INITIAL mode positioning of cams and gears precisely.

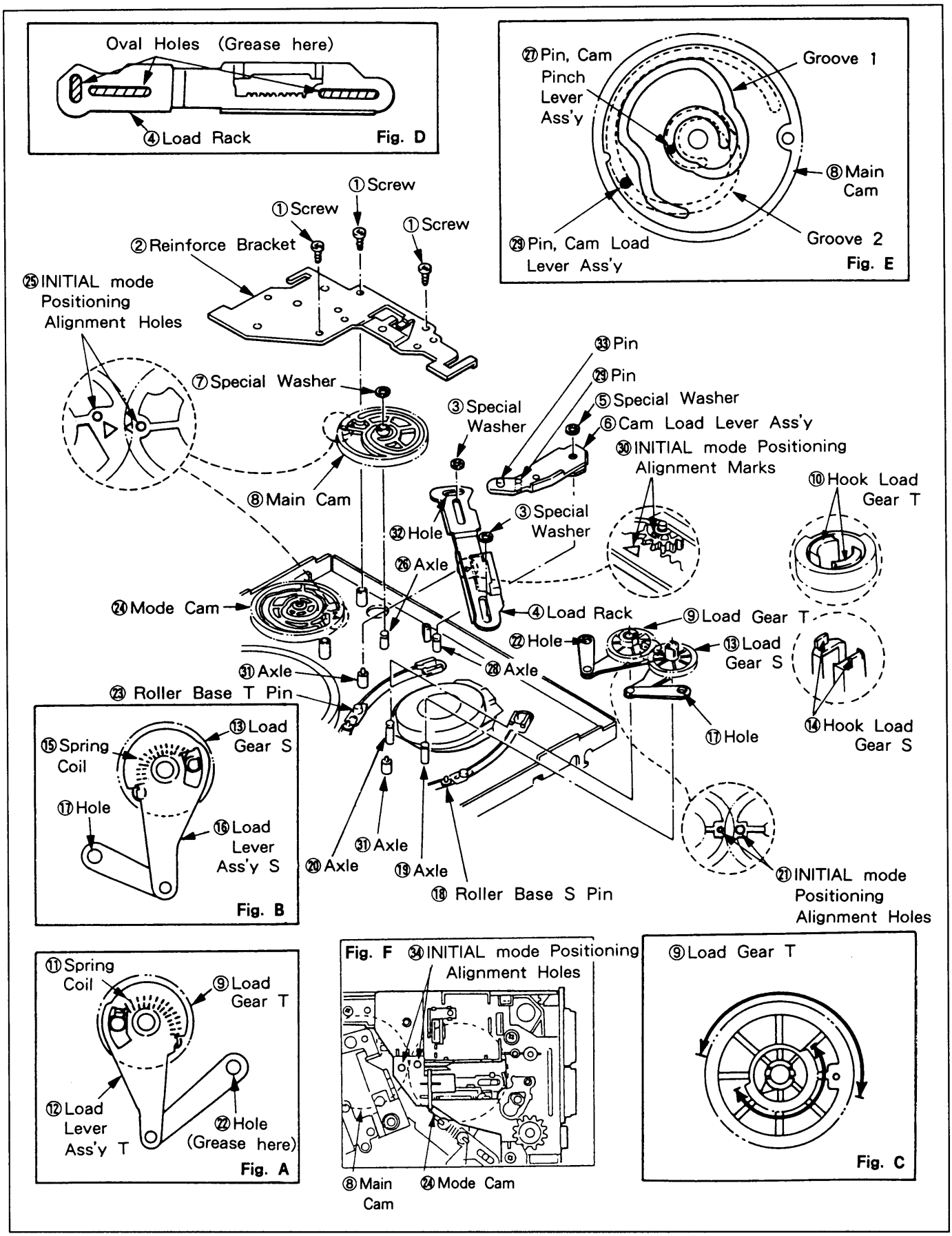


Fig. 2-4-1. Loading Mechanism Main Parts

2-4-2. MODE CAM (See Fig. 2-4-2.)

1. Removal

1) Set the INITIAL mode with the mode selector (VHJ-0050).
2) Remove the REINFORCE BRACKET as instructed in 2-4-1.
3) Remove the two special washers ①, then remove the CAM PLATE SLIDE ASS'Y ②.
4) Remove the MODE CAM ③.

2. Remounting

1) Referring to 2-4-1., confirm that the MAIN CAM is in the INITIAL mode position.
2) In case the MAIN CAM is misplaced, use the mode selector (VHJ-0050) to align the MAIN CAM positioning hole with the chassis INITIAL mode position hole (refer to 2-4-1. for the INITIAL mode position). Since the ROTARY SWITCH (mode detector switch) does not rotate, the mode selector indicator lamp will not show the correct mode.
3) Align the ROTARY SWITCH (mode detector switch) ④ with the INITIAL mode positioning alignment mark ⑤ as shown in Fig. A.
4) Mount the MODE CAM ③ onto the axle ⑥. Do it so that the SLIDE CAM ASS'Y pin ⑪ is placed in the GROOVE 3 as shown in Fig. B.
5) Mount the CAM PLATE SLIDE ASS'Y ② onto the axles ⑥ and ⑦. Do it so that the pin ⑧ gets into the GROOVE 4 of the MODE CAM as shown in Fig. B, and the point of the bent-up part ⑨ into the ACT PLATE SLIDE ASS'Y hole ⑩.
6) Mount the two special washers ① onto the axles ⑥ and ⑦.
7) Mount the REINFORCE BRACKET as instructed in 2-4-1.

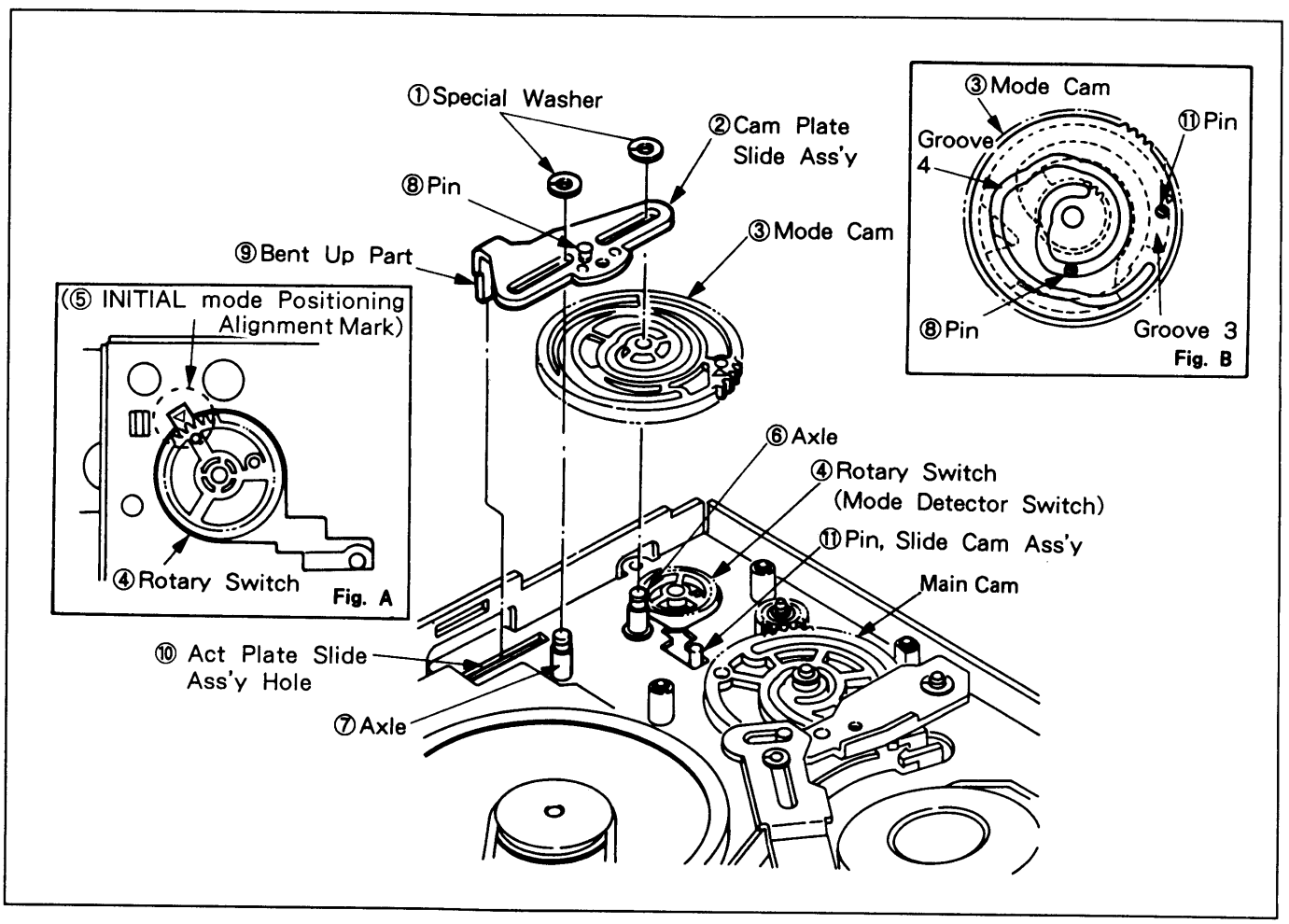


Fig. 2-4-2. Mode Cam

2-5. COMPL HEAD BRACKET (ACE HEAD) (See Fig. 2-5-1.)

1. Removal

1) Remove the special nut ②.
2) Remove the SLEEVE ③, the COMPL HEAD BRACKET ① and the SPRING COIL ④, in that order.

Note: Take care not to scratch or soil the ACE head surface.

2. Remounting

1) Apply grease to the axle ⑥ as shown in Fig. A.
2) Apply grease to the spot where the COMPL HEAD BRACKET ① makes contact with the STOPPER ⑦.
3) Mount the SPRING COIL ④ and the COMPL HEAD BRACKET ①, in that order, onto the axle ⑥. Hook one end of the SPRING COIL ④ to the notch ⑤, and the other end to the COMPL HEAD BRACKET, so that the COMPL HEAD BRACKET is pressed against the STOPPER ⑦.
4) Mount the special nut ② onto the axle ⑥ through the SLEEVE ③.
5) Clean the ACE head surface with a chamois leather moistened with methyl alcohol.
6) Perform ACE head adjustment as instructed in 5-4.

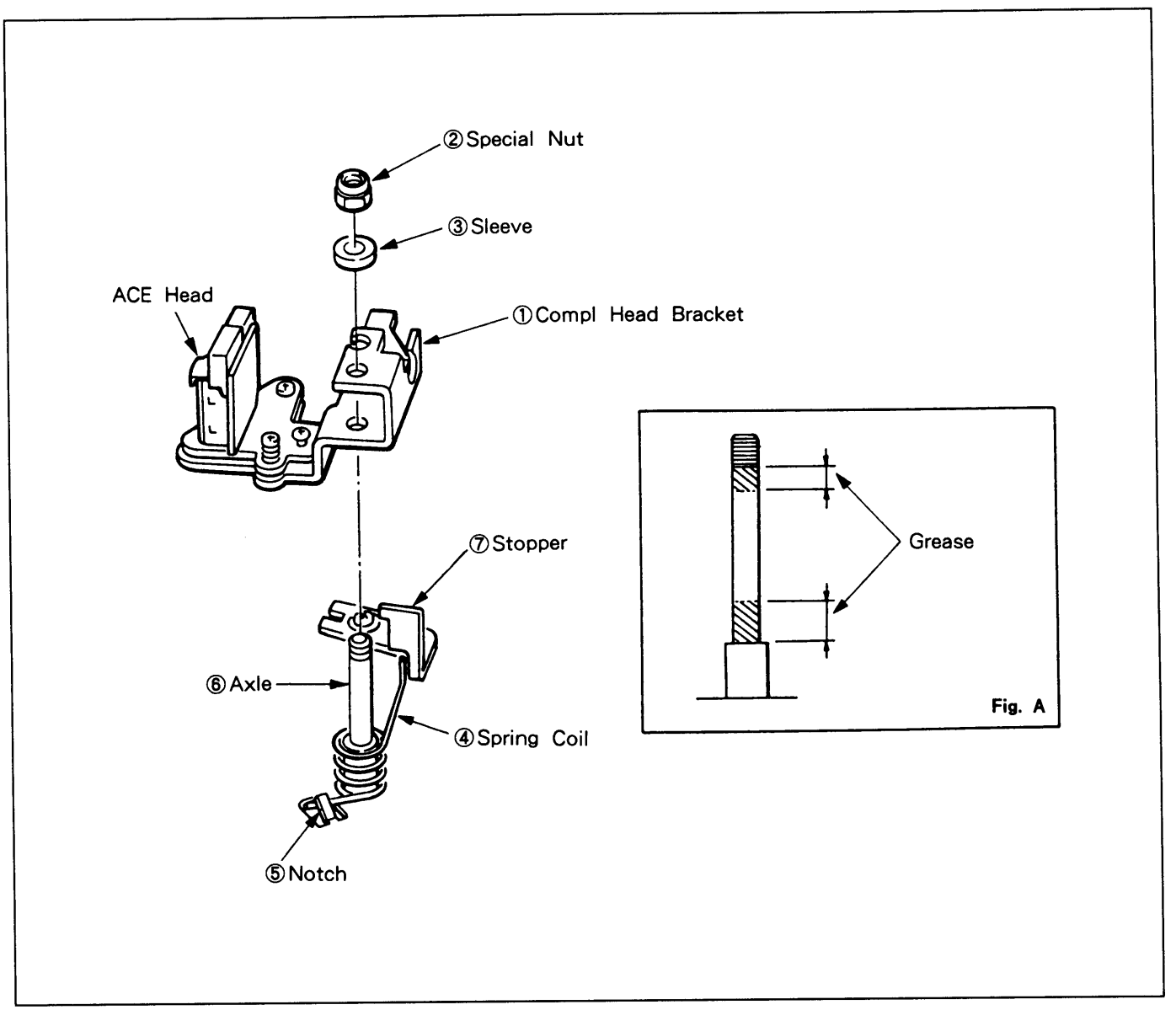


Fig. 2-5-1. Compl Head Bracket (ACE Head)

2-6. PINCH ROLLER PRESSURE MECHANISM (See Fig. 2-6-1.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the COMPL HEAD BRACKET as instructed in 2-5.
3) Remove the PINCH SPRING COIL ①.
4) Remove the special washer ②, then remove the PINCH LEVER ASS'Y ③.
5) Remove the REV GUIDE LEVER SPRING COIL ④.
6) Remove REV GUIDE LEVER ASS'Y ⑥ from the hook ⑤ of the plastic bearing on the bottom side. Use a jig VHJ-0073 shown in Fig. 2-6-2 to widen the hook of the plastic bearing. By so doing, the above removal of the REV GUIDE LEVER ASS'Y ⑥ can be made more easily. Care should be taken to avoid pushing the jig VHJ-0073 too much. Pushing it too hard may damage the hook in an extreme case.
7) Remove the SLIDE BRAKE SPRING COIL ⑦.
8) Remove the special washer ⑧, then remove the PINCH CAM LEVER ASS'Y ⑨.
9) Remove the ACT PINCH SLIDE ASS'Y ⑩.

Note: If the hook ⑤ of the plastic bearing is damaged, reference should be made to Section 3. "Method of Repairing the Bearing Section of REV GUIDE LEVER ASS'Y".

2. Remounting

1) Apply grease to pins ⑫/⑬ and axles ⑯/⑱.
2) Apply grease to the ACT PINCH SLIDE ASS'Y pin ⑰.
3) Set the INITIAL mode with the mode selector (VHJ-0050).
4) Mount the ACT PINCH SLIDE ASS'Y ⑩ onto pins ⑫ and ⑬.
5) Insert the pin ⑭ of the PINCH CAM LEVER ASS'Y ⑨ into the MAIN CAM ⑪ GROOVE 1, and mount onto the axle ⑯ while inserting the ACT PINCH SLIDE ASS'Y pin ⑰ of the ACT PINCH SLIDE ASS'Y into the hole ⑮.
6) Mount the special washer ⑧ onto the axle ⑯.
7) Hook the SLIDE BRAKE SPRING COIL ⑦ to the plastic pin ⑲.
8) Mount the REV GUIDE LEVER ASS'Y ⑥ to the plastic molding bearing, then fix it with the hook ⑤ at the bottom.
9) Hook the REV GUIDE LEVER SPRING COIL ④.
10) Mount the PINCH LEVER ASS'Y ③ to the axle ⑱.
11) Mount the special washer ② to the axle ⑱.
12) Hook the PINCH SPRING COIL ① between the ACT PINCH SLIDE ASS'Y ⑩ and the PINCH LEVER ASS'Y ③.
13) Mount the COMPL HEAD BRACKET as instructed in 2-5.
14) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
15) Perform ACE head adjustment as instructed in 5-4.

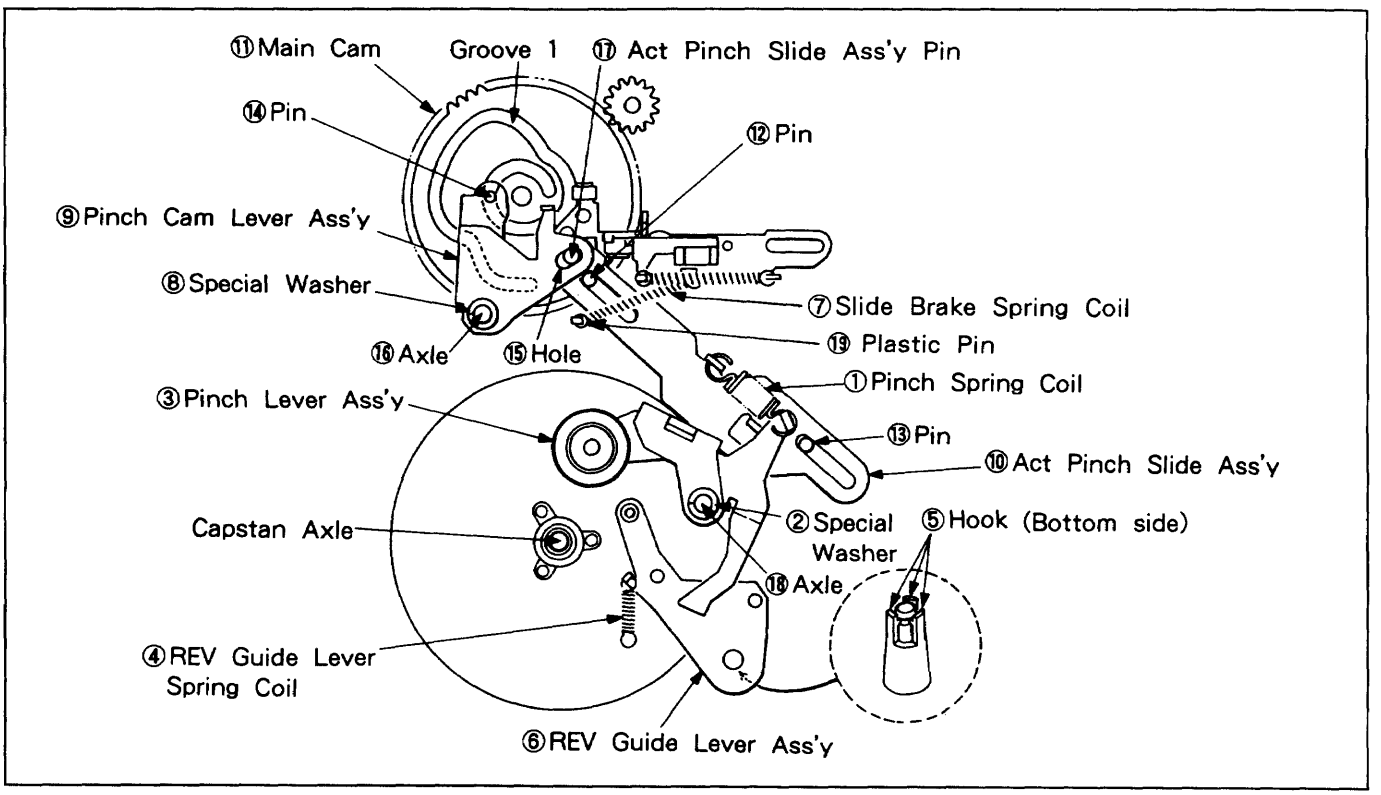
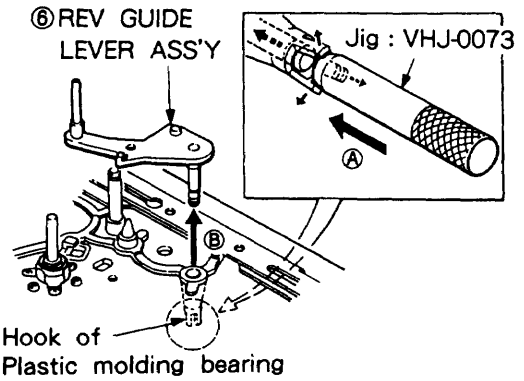


Fig. 2-6-1. Pinch Roller Pressure Mechanism



Remove REV GUIDE LEVER ASS'Y in the direction of arrow Ⓑ, pushing VHJ-0073 slightly in the direction of arrow Ⓐ.
Be careful not to damage the hook by pushing too much.

Fig. 2-6-2. Method of Using the Jig VHJ-0073

3. Method of Repairing the Bearing Section of REV GUIDE LEVER ASS'Y

If the hook of the plastic molding bearing is damaged in the process of removing the REV GUIDE LEVER ASS'Y, proceed with the repair as follows:

1) Scrape the broken hook of the bearing section with a cutter knife and flatten it.
2) Insert the REV GUIDE LEVER ASS'Y in the bearing and fit a stopper washer in. The special washer to be used must be Part No. 411 109 1605. This stop washer (part No. 411 109 1605) is the same as that used on SUPPLY REEL ASS'Y or TAKE-UP REEL ASS'Y.

Remove the REV GUIDE LEVER ASS'Y toward an arrow B while pushing the jig VHJ-0073 lightly in the direction of an arrow.
Pushing the jig VHJ-0073 too much may cause hook breakage. Therefore, care should be taken.

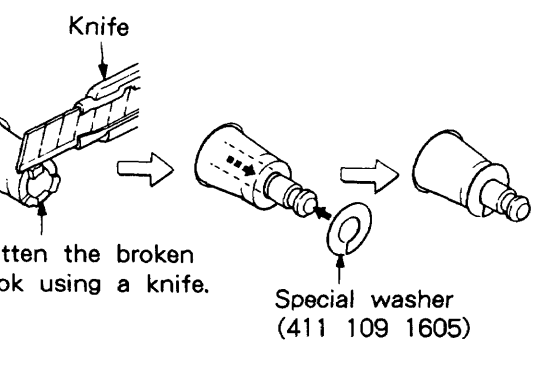


Fig. 2-6-3. Method of Repairing the Bearing Section of the REV GUIDE LEVER ASSEMBLY

2-7. BRAKE MECHANISM

2-7-1. SUB TAKE-UP BRAKE ASS'Y (See Fig. 2-7-1.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the SPRING COIL ①.
3) While pushing the hook ② in the direction of arrow, remove the SUB TAKE-UP BRAKE ASS'Y ③.

2. Remounting

1) Mount the SUB TAKE-UP BRAKE ASS'Y ③ onto the pin ④. Confirm that the hook ② is firmly hooked to the chassis.
2) Fit the SPRING COIL between hooks ⑤ and ⑥.
3) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

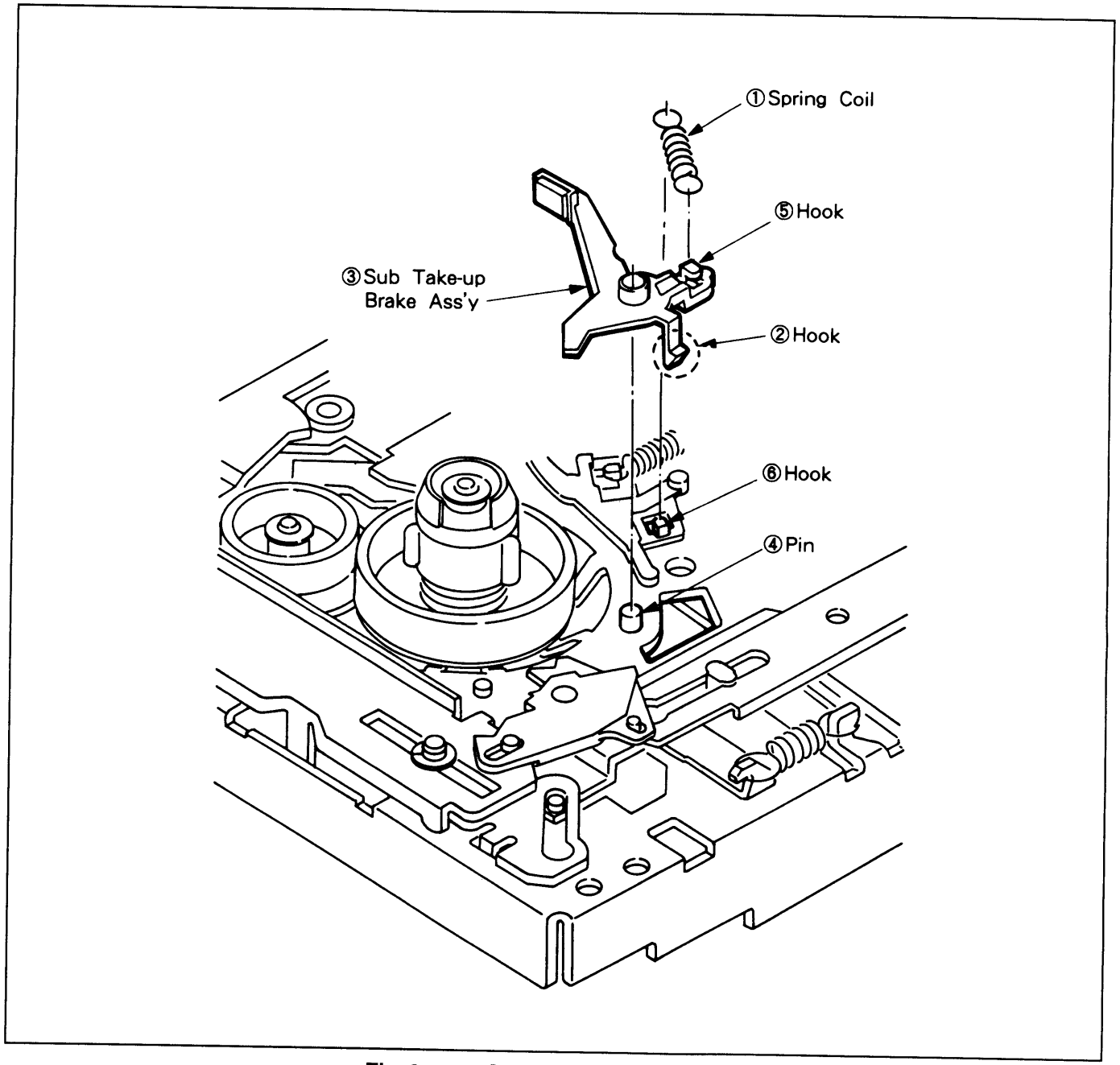


Fig. 2-7-1. Sub Take-up Brake Ass'y

2-7-2. SUPPLY BRAKE ASS'Y AND TAKE-UP BRAKE ASS'Y (See Fig. 2-7-2.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the SUB TAKE-UP BRAKE as instructed in 2-7-1.
3) Remove the special washer ①, then remove the CONTROL PLATE LEVER ②.
4) Remove the two special washers ③, then remove the M PLATE SLIDE ASS'Y ④.
5) Remove the SPRING COIL ⑤.
6) Remove the SUPPLY BRAKE ASS'Y ⑥ and the TAKE-UP BRAKE ASS'Y ⑦.

Note: Take care not to soil the brake shoes.

2. Remounting

1) Apply a thin layer of grease to axles ⑧ and ⑨.
2) Mount the TAKE-UP BRAKE ASS'Y ⑦ onto the axle ⑧.
3) Mount the SUPPLY BRAKE ASS'Y ⑥ onto the axle ⑨.
4) After applying a thin layer of grease to the M PLATE SLIDE ASS'Y ④ as shown in Fig. A, mount it onto the two pins ⑩.
5) Mount the two special washers ③ onto the two pins ⑩.
6) After applying grease to the CONTROL PLATE LEVER ② as shown in Fig. B, mount it onto the axle ⑪. Insert the pin ⑫ of the ACT PLATE SLIDE ASS'Y into the hole ⑭, and the pin ⑬ of M PLATE SLIDE ASS'Y into the hole ⑮.
7) Mount the special washer ① onto the pin ⑫.
8) Mount the SUB TAKE-UP BRAKE as instructed in 2-7-1.
9) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

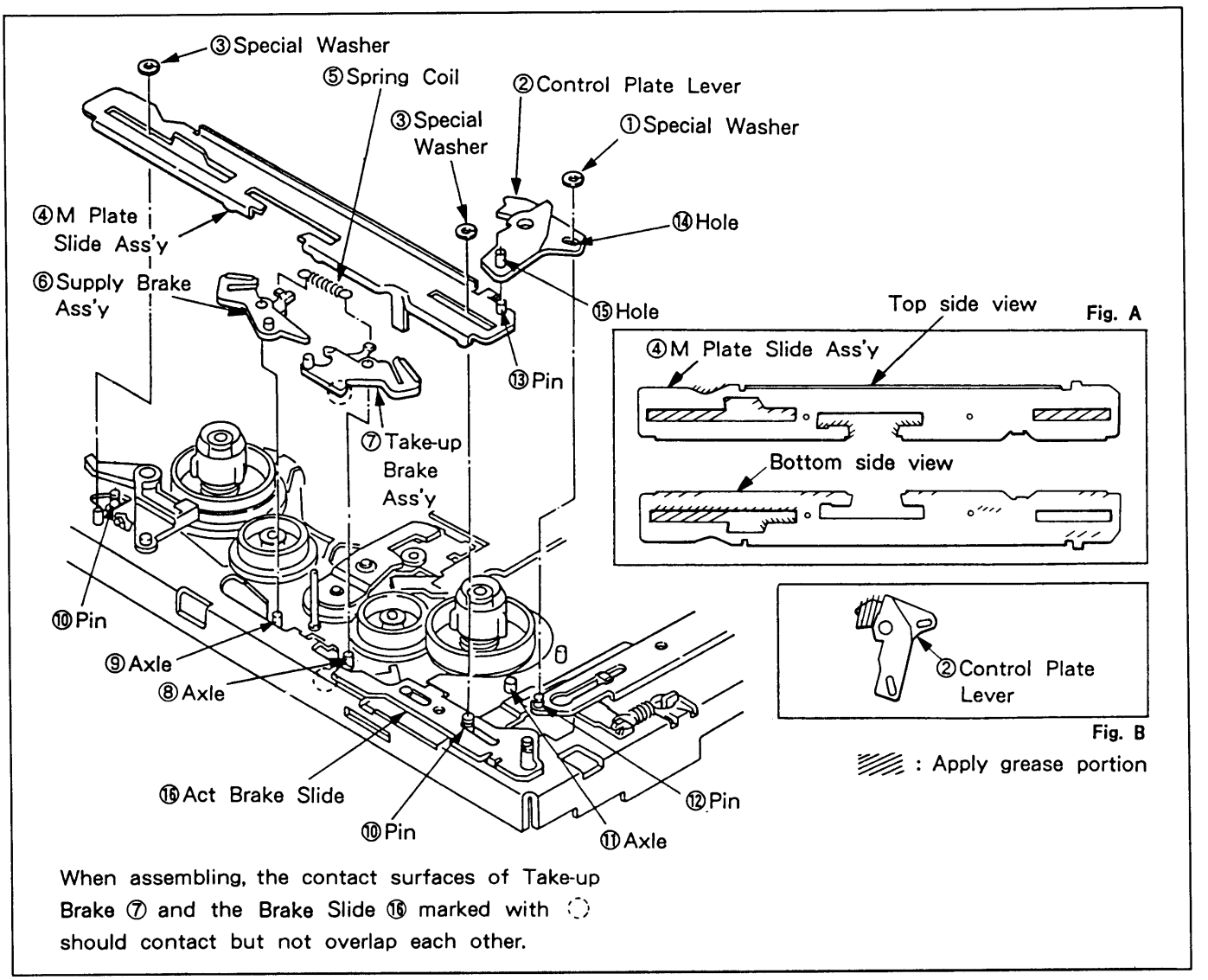


Fig. 2-7-2. Supply Brake Ass'y & Take-up Brake Ass'y

2-7-3. TENSION LEVER ASS'Y AND BAND HOLDER ASS'Y (See Fig. 2-7-3.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the SPRING COIL ①.
3) Remove the screw ③ fixing the BAND HOLDER ASS'Y ②.
4) Push the SUB SUPPLY BRAKE ④ in the direction of the arrow, setting the BAND HOLDER ASS'Y ② free.
5) Open the hook ⑤ a little and remove the TENSION LEVER ASS'Y ⑥. Take care not to open the hook ⑤ too much, otherwise it may be deformed or broken.
6) Remove the hook ⑦ of the BAND HOLDER ASS'Y.

2. Remounting

1) Mount the BAND HOLDER ASS'Y hook ⑦ into the TENSION LEVER ASS'Y hole ⑧.
2) Insert the TENSION LEVER ASS'Y axle ⑨ into the hole ⑩ and confirm that the hook ⑤ is hooked.
3) While pushing the SUB SUPPLY BRAKE ④ in the direction of arrow A, mount the BAND HOLDER ASS'Y ② with the screw ③.
4) Hook the SPRING COIL ① between the hooks ⑪ and ⑫.
5) Perform TENSION POLE position adjustment as instructed in 5-3.
6) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

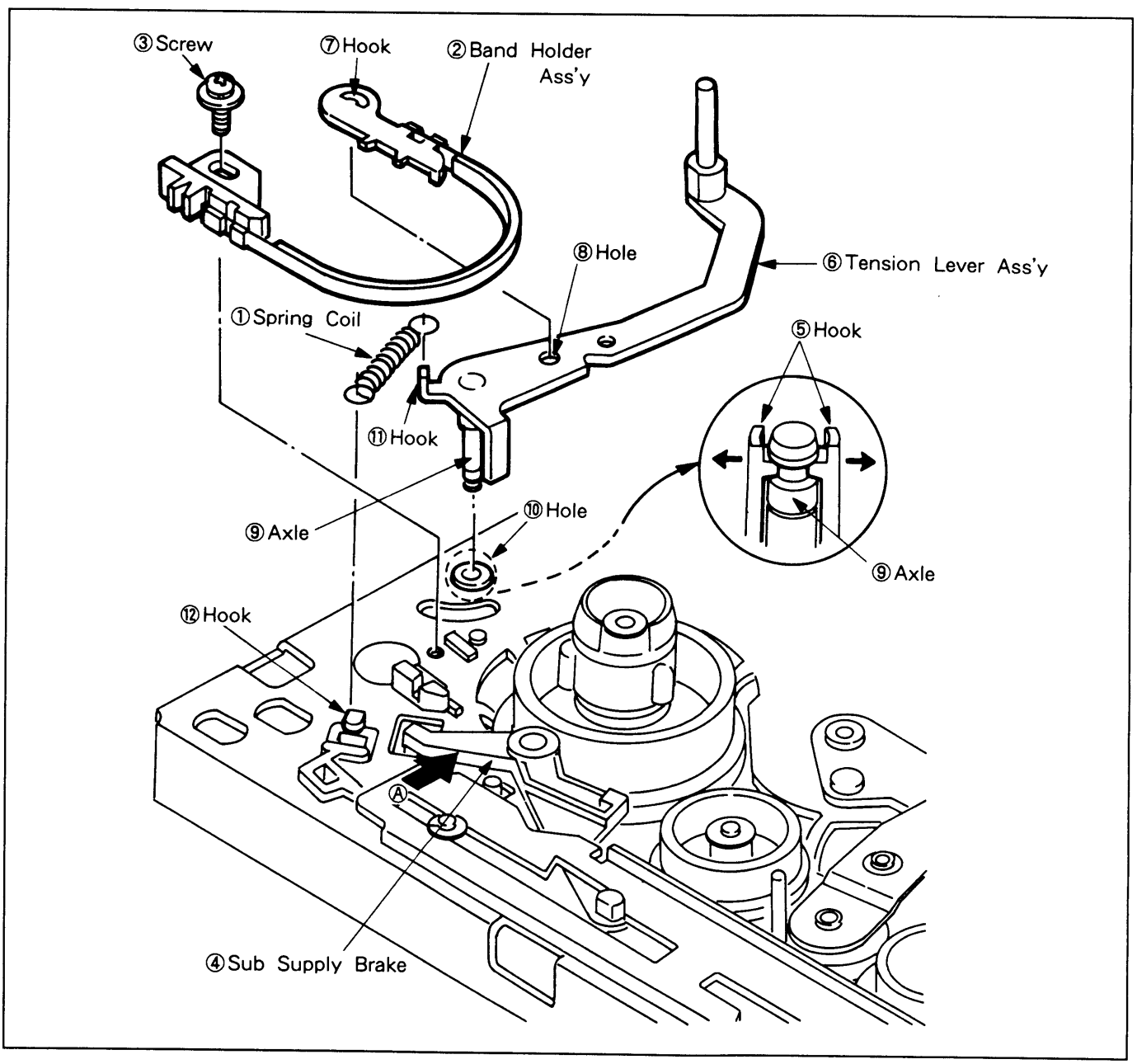


Fig. 2-7-3. Tension Lever Ass'y & Band Holder Ass'y

2-7-4. CAPSTAN BRAKE ASS'Y (See Fig. 2-7-4.)

1. Removal

1) Remove the SPRING COIL ①.
2) Unhook the hook ②, then remove the CAPSTAN BRAKE ASS'Y ③.

2. Remounting

1) Mount the CAPSTAN BRAKE ASS'Y ③ onto the axle ④. Confirm that the hook ② is hooked to the chassis.
2) Hook the SPRING COIL ① between hooks ⑤ and ⑥. Fix the hook ⑥ side with adhesive (use an adhesive that allows later detaching).

Note: As for the model with two video heads, there are two types : one with the spring coil ① and CAPSTAN BRAKE ASS'Y ③ mounted, and one where these parts are not mounted.

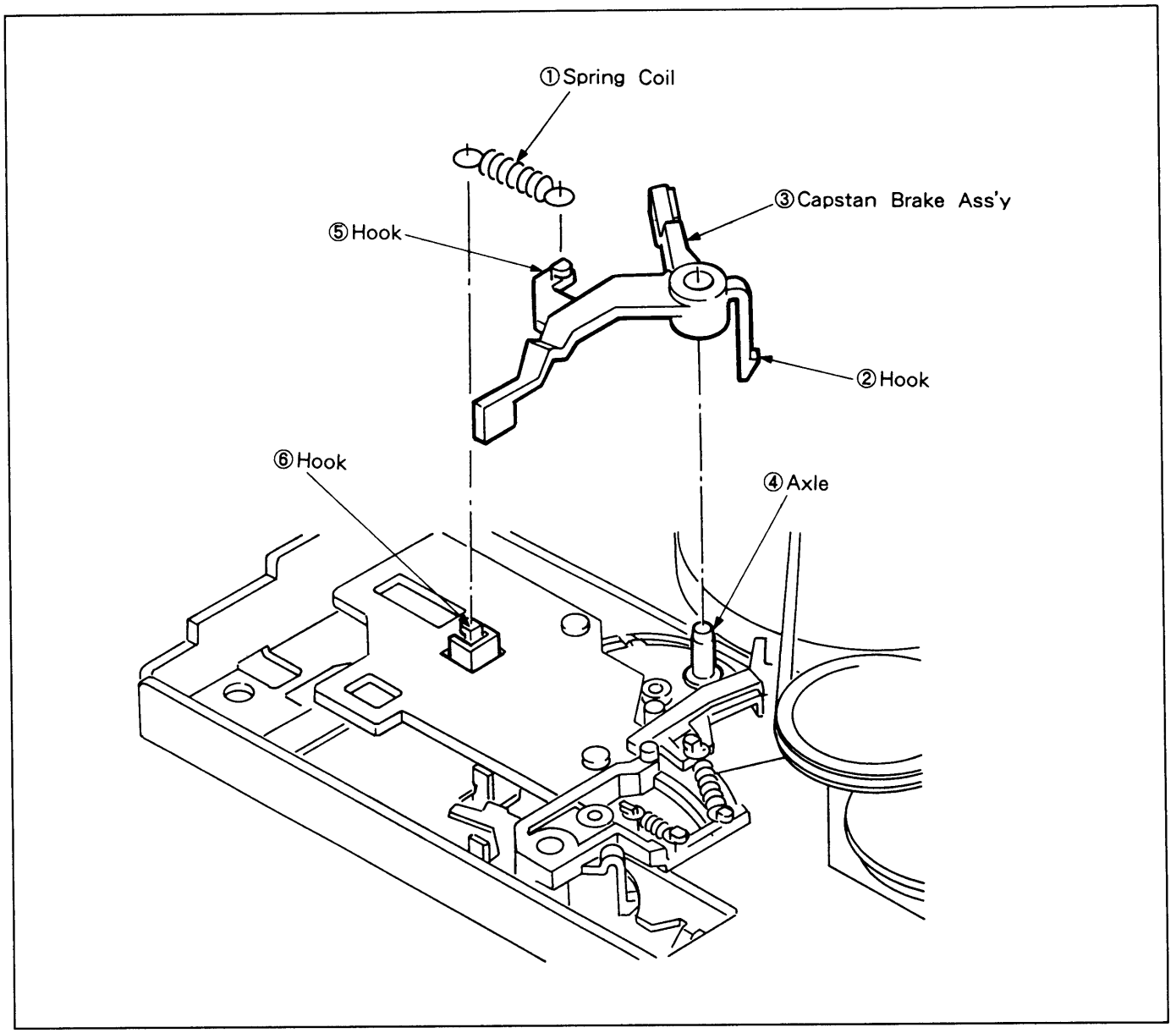


Fig. 2-7-4. Capstan Brake Ass'y

2-8. REEL TABLE DRIVE MECHANISM

2-8-1. SUPPLY REEL ASS'Y AND SUPPLY REEL GEAR (See Fig. 2-8-1.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the BAND HOLDER ASS'Y as instructed in 2-7-3.
3) Set the PLAY mode with the mode selector (VHJ-0050).
4) Remove the special washer ①, then remove the SUPPLY REEL ASS'Y ② and the washer ③.
5) Remove the special washer ④.
6) While pushing the SUPPLY BRAKE ASS'Y ⑤ in the direction of arrow A, remove the SUPPLY REEL GEAR ⑥ and the washer ⑦.

Note: Be sure that no dirt gets on the section where both brake shoes make contact.

2. Remounting

1) Apply a little oil (less than one drop) to the part of the axle ⑧ indicated by the arrow B, then mount the washer ⑦.
2) While pushing the SUPPLY BRAKE ASS'Y ⑤ in the direction of arrow A, mount the SUPPLY REEL GEAR ⑥ onto the axle ⑧.
3) Mount the special washer ④ to the axle ⑧.
4) Apply 1 drop of oil to the part of the axle ⑨ indicated by the arrow C, then mount the washer ③.
5) Mount the SUPPLY REEL ASS'Y ② onto the axle ⑨.
6) Perform reel table height adjustment as instructed in 5-2-1.
7) Mount the special washer ① onto the axle ⑨.
8) Mount the BAND HOLDER ASS'Y as instructed in 2-7-3.
9) Perform tension pole position adjustment as instructed in 5-3.
10) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

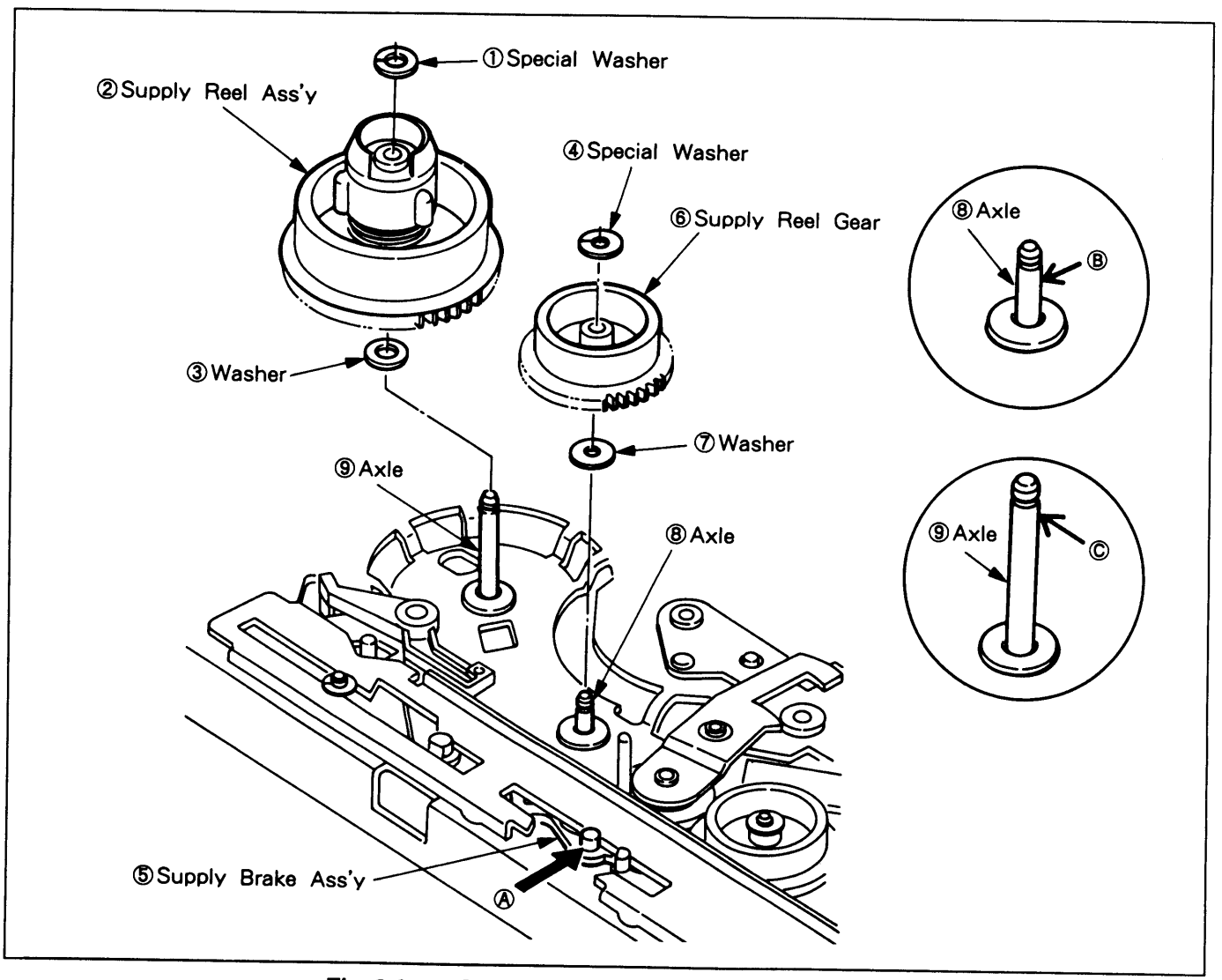


Fig. 2-8-1. Supply Reel Ass'y & Supply Reel Gear

2-8-2. TAKE-UP REEL ASS'Y (See Fig. 2-8-2.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the special washer ①.
3) Push the SUB TAKE-UP BRAKE ASS'Y ② in the direction of arrow A to release the brake, then remove the TAKE-UP REEL ASS'Y ③ and the washer ④.

Note: Be sure that no dirt gets on the section where both brake shoes make contact.

2. Remounting

1) Apply 1 drop of oil to the part of the axle ⑤ indicated by the arrow B, then mount the washer ④.
2) While pushing the SUB TAKE-UP BRAKE ASS'Y ② in the direction of arrow A, mount the TAKE-UP REEL ASS'Y ③ onto the axle ⑤.
3) Perform reel table height adjustment as instructed in 5-2.
4) Mount the special washer ① onto the axle ⑤.
5) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

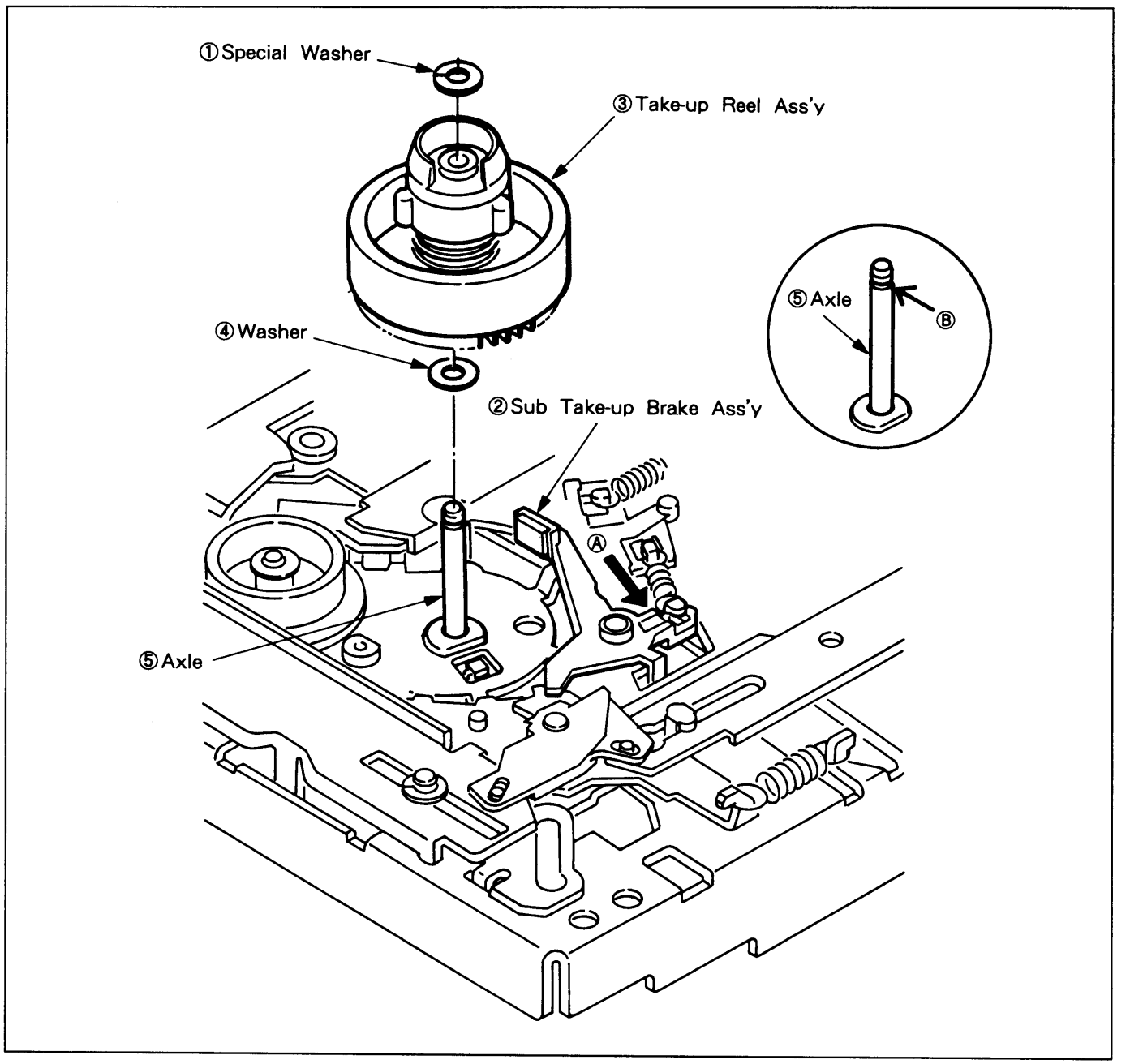


Fig. 2-8-2. Take-up Reel Ass'y

2-8-3. TAKE-UP REEL GEAR (See Fig. 2-8-3.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the TAKE-UP REEL ASS'Y as instructed in 2-8-2.
3) Remove the SUB TAKE-UP BRAKE ASS'Y as instructed in 2-7-1.
4) Remove the TAKE-UP BRAKE ASS'Y as instructed in 2-7-2.
5) Remove the special washer ①, then remove the TAKE-UP REEL GEAR ③ and the washer ④.

2. Remounting

1) Apply a little oil (less than one drop) to the part of the axle ⑤ indicated with an arrow.
2) Mount the washer ④ and the TAKE-UP REEL GEAR ③ onto the axle ⑤.
3) Mount the special washer ① onto the axle ⑤.
4) Mount the TAKE-UP BRAKE ASS'Y as instructed in 2-7-2.
5) Mount the SUB TAKE-UP BRAKE ASS'Y as instructed in 2-7-1.
6) Mount the TAKE-UP REEL ASS'Y as instructed in 2-8-2.
7) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

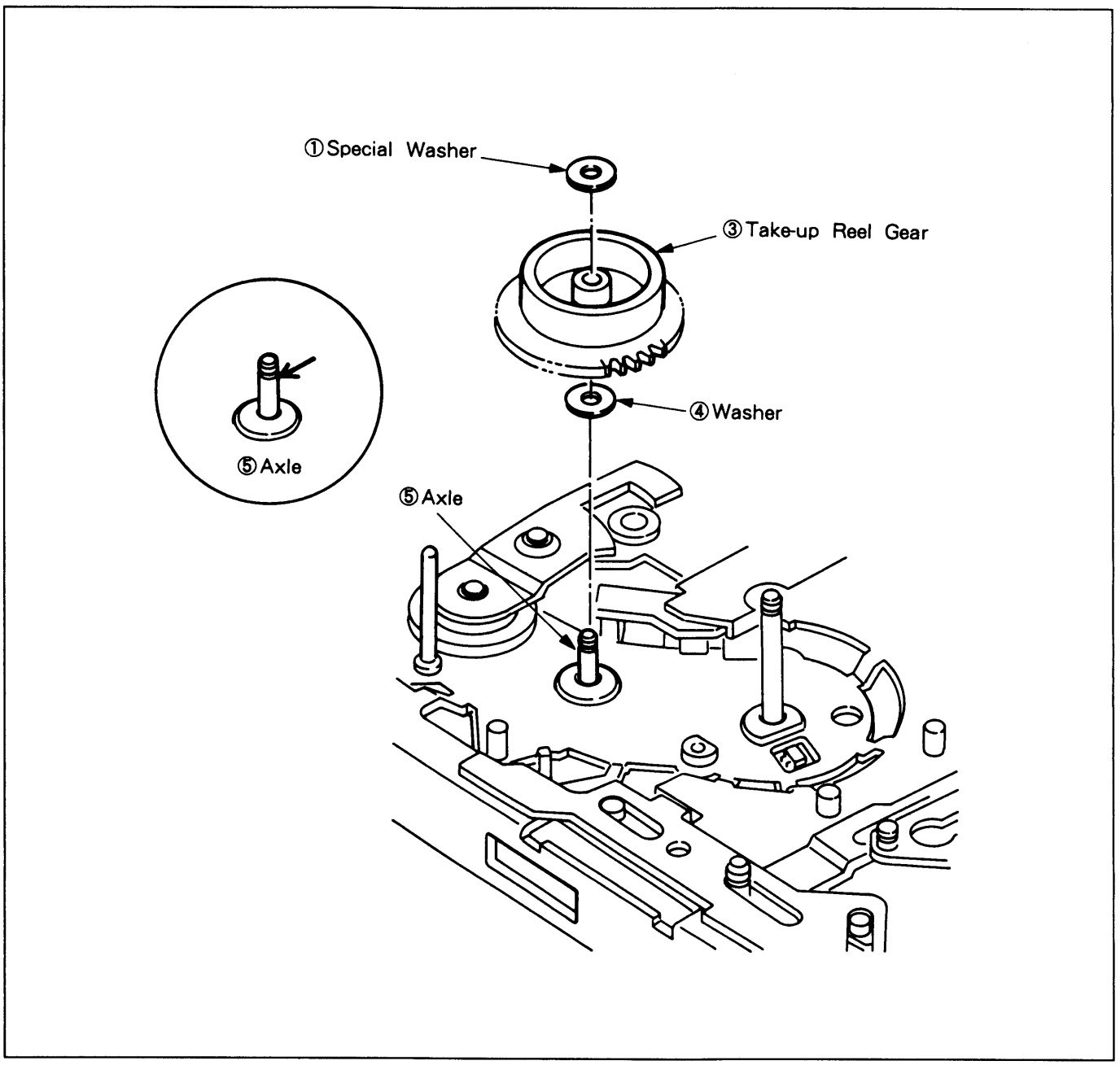


Fig. 2-8-3. Take-up Reel Gear

2-8-4. REEL PULLEY AND FRICTION GEAR ASS'Y (See Fig. 2-8-4.)

1. Removal

1) Remove the two screws ①, then remove the PULLEY BRACKET ②.
2) Remove the REEL DRIVE BELT ③.
3) Remove the special washer ④, then remove the REEL PULLEY ⑤.
4) Remove the special washer ⑥, then remove the FRICTION GEAR ASS'Y ⑦ and the washer ⑧.

Note: Some model may not incorporate the pulley bracket ②. Washer ⑫ is mounted on the pin ⑪ with a screw ①, and servesas the PULLEY BRACKET ②.

2. Remounting

1) Apply one drop of oil to the parts of axles ⑨ and ⑩ indicated with arrows.
2) Mount the washer ⑧ and the FRICTION GEAR ASS'Y ⑦ onto the axle ⑨.
3) Mount the special washer ⑥ onto the axle ⑨.
4) Mount the REEL PULLEY ⑤ onto the axle ⑩.
5) Mount the special washer ④ onto the axle ⑩.
6) Set the REEL DRIVE BELT ③.
7) Mount the PULLEY BRACKET ② with the two screws ①.

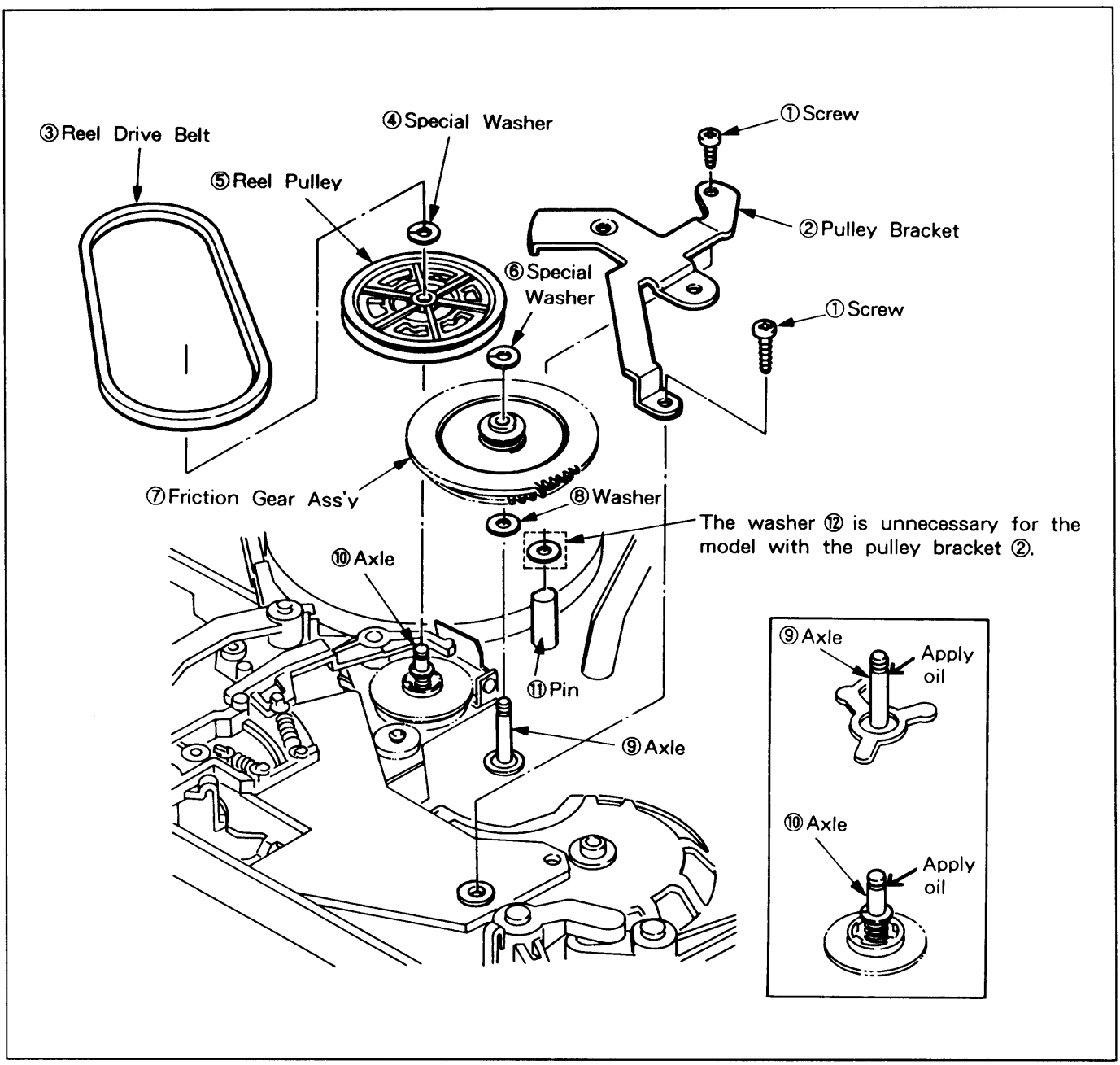


Fig. 2-8-4. Reel Pulley & Friction Gear

2-8-5. COMPL CLUTCH (See Fig. 2-8-5.)

1. Removal

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Remove the PULLEY BRACKET, the REEL DRIVE BELT and the REEL PULLEY as instructed in 2-8-4.
3) Remove the screw ①, then remove the COMPL MC-4 ②.
4) Remove the two screws ③, then remove the COMPL CLUTCH ④.

2. Remounting

1) Mount the COMPL CLUTCH ④ with the two screws ③, aligning it with the protuberance ⑤.
2) After inserting the CN831 (COMPL MC-4) into the CN801 (COMPL MC-1), mount the COMPL MC-4 with the screw ①.
3) Mount the REEL PULLEY, the REEL DRIVE BELT and the PULLEY BRACKET as instructed in 2-8-4.
4) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

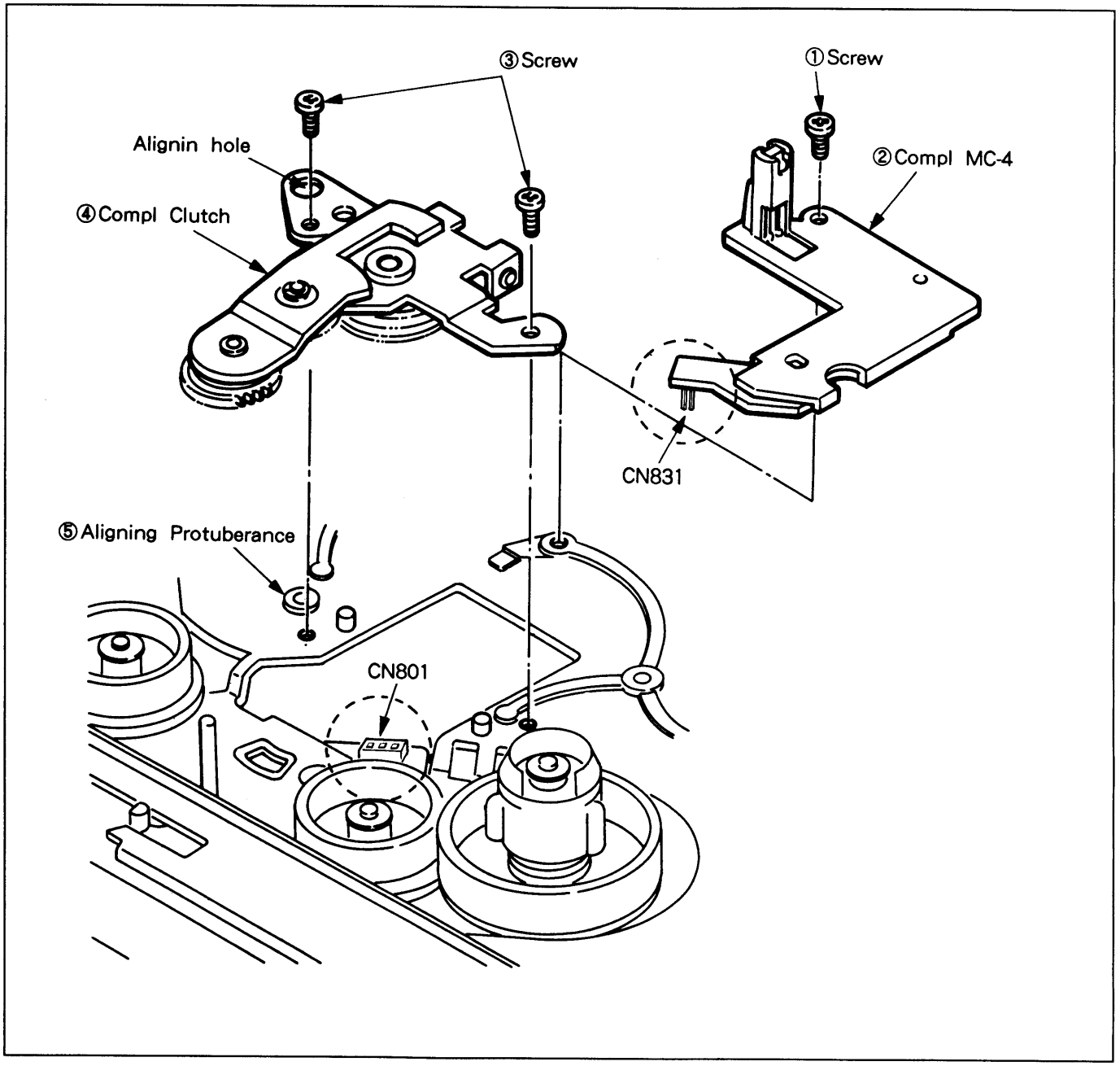


Fig. 2-8-5. Compl Clutch

2-8-6. CLUTCH CHANGE LEVER AND CLUTCH LEVER ASS'Y (See Fig. 2-8-6.)

1. Removal

1) Remove the CAPSTAN BRAKE ASS'Y as instructed in 2-7-4.
2) Remove the PULLEY BRACKET, the REEL DRIVE BELT and the REEL PULLEY as instructed in 2-8-4.
3) Remove the SPRING COIL ①.
4) Unhook the hook ②, then remove the CLUTCH CHANGE LEVER ③.
5) Unhook the hook ⑤, then remove the CLUTCH LEVER ASS'Y ⑥.

2. Remounting

1) Mount the CLUTCH LEVER ASS'Y ⑥ onto the axle ⑦. Confirm that the hook ⑤ is hooked to the chassis.
2) Mount the CLUTCH CHANGE LEVER ③ onto the axle ⑧. Confirm that the hook ② is hooked to the chassis.
3) Hook the SPRING COIL ① between the hooks ⑨ and ⑩.
4) Mount the PULLEY BRACKET, the REEL DRIVE BELT and the REEL PULLEY as instructed in 2-8-4.
5) Mount the CAPSTAN BRAKE ASS'Y as instructed in 2-7-4.

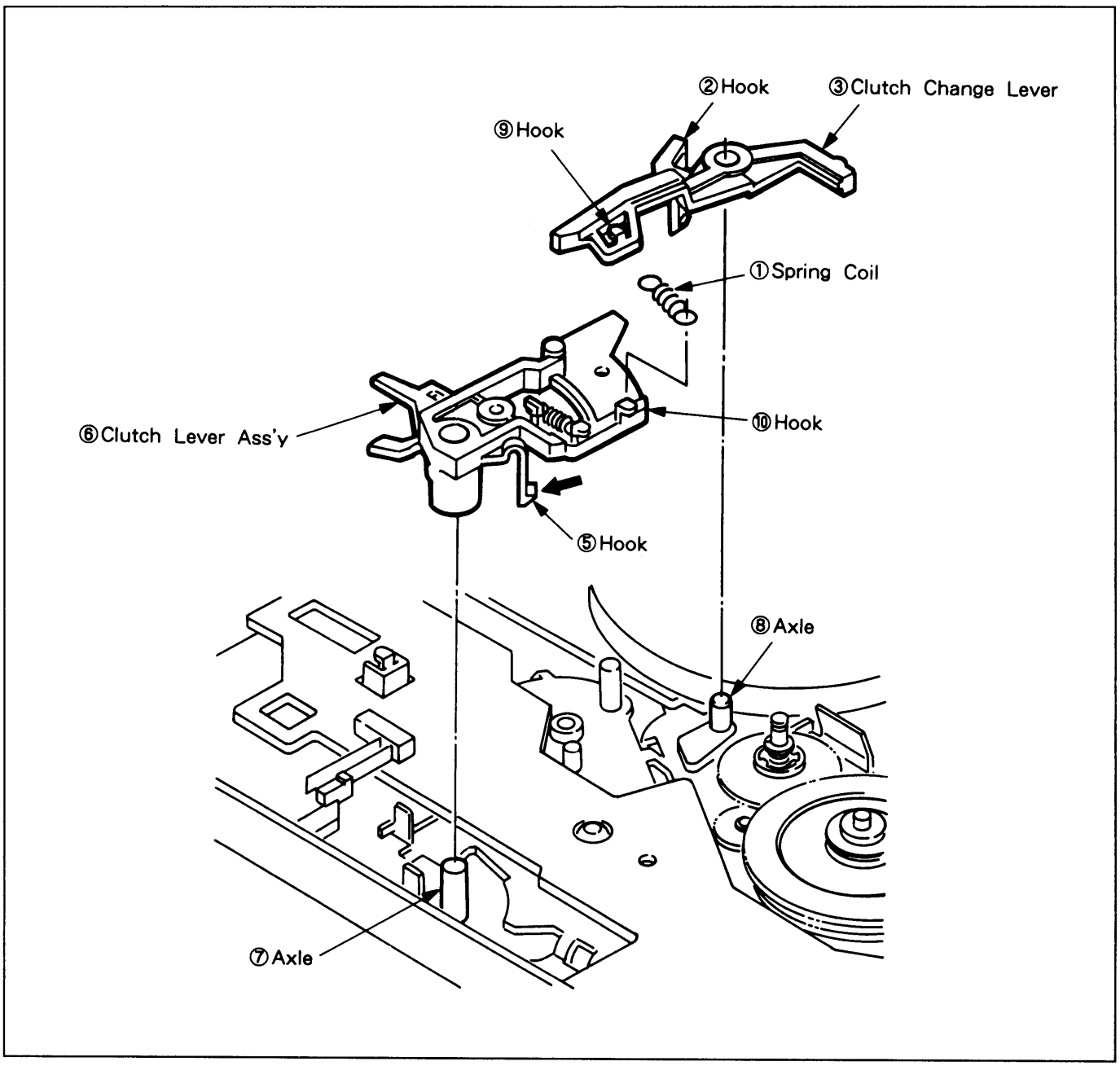


Fig. 2-8-6. Clutch Change Lever & Clutch Lever Ass'y

2-9. CAPSTAN MOTOR (See Fig. 2-9-1.)

1. Removal

1) Remove the CAPSTAN BRAKE ASS'Y as instructed in 2-7-4.
2) Remove the CAPSTAN MOTOR ⑥ connector.
3) Remove the REEL DRIVE BELT ② from the CAPSTAN MOTOR PULLEY ①.
4) Remove the two screws ④ fixing the COMPL CASSETTE MECHANISM TOP BOARD ③, then slide the TOP BOARD ③ backward.
5) Remove the three screws ⑤, then remove the CAPSTAN MOTOR ⑥.

Note: Take care not to scratch or soil the capstan axle.

2. Remounting

1) Mount the CAPSTAN MOTOR ⑥ with the three screws ⑤.
2) Connect the CAPSTAN MOTOR ⑥ connector.
3) Mount the TOP BOARD ③ with the two screws ④.
4) Fit the REEL DRIVE BELT ② around the CAPSTAN MOTOR PULLEY ① and the REEL PULLEY ⑦.
5) Mount the CAPSTAN BRAKE ASS'Y as instructed in 2-7-4.

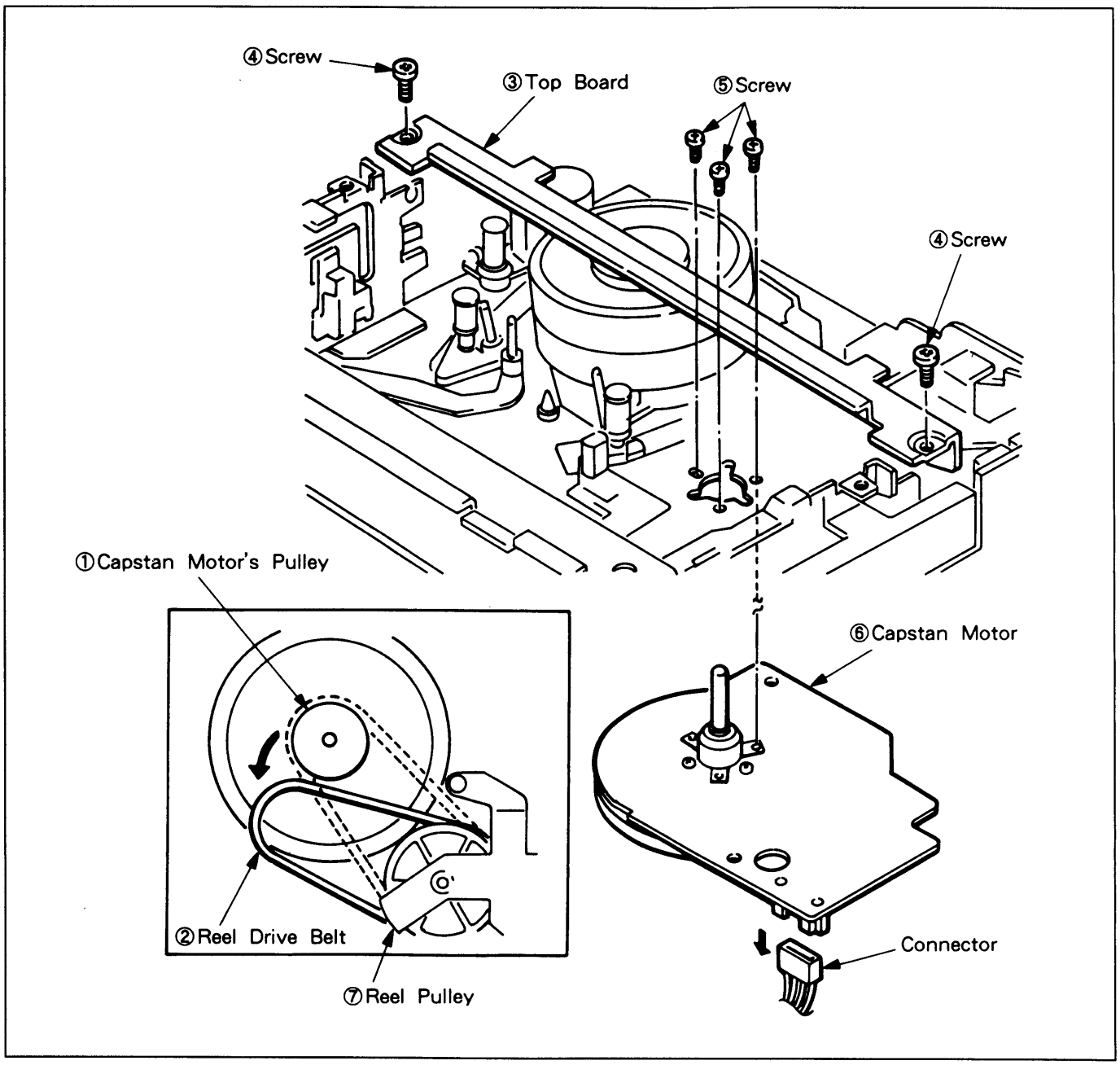


Fig. 2-9-1. Capstan Motor

2-10. FIXED GUIDE, FE HEAD LEVER ASS'Y

2-10-1. S-SIDE FIXED GUIDE AND FE LEVER ASS'Y (See Fig. 2-10-1.)

1. Removal

1) Remove the special nut ①, then remove the GUIDE PIPE ③ and the special washer ② (lower), in that order.
2) Remove the SPRING COIL ⑤.
3) Remove the FTE HEAD connector.
4) Remove the special washer ⑥, then remove the FE HEAD LEVER ASS'Y ⑦.

2. Remounting

1) After mounting the FE LEVER ASS'Y ⑦ onto the axle ⑧, mount the special washer ⑥.
2) Hook the SPRING COIL ⑤ between the chassis notch ⑨ and the FE LEVER ASS'Y hook ⑩.
3) Mount the special washer ② (lower), the GUIDE pipe ③ and the special nut ① to the axle ⑧, in that order. At that time, do not excessively tighten the special nut ① to avoid idle rotation of the axle rivet. The height of fixing guide on the inlet side is not required.
4) Connect the connector to the FTE HEAD.

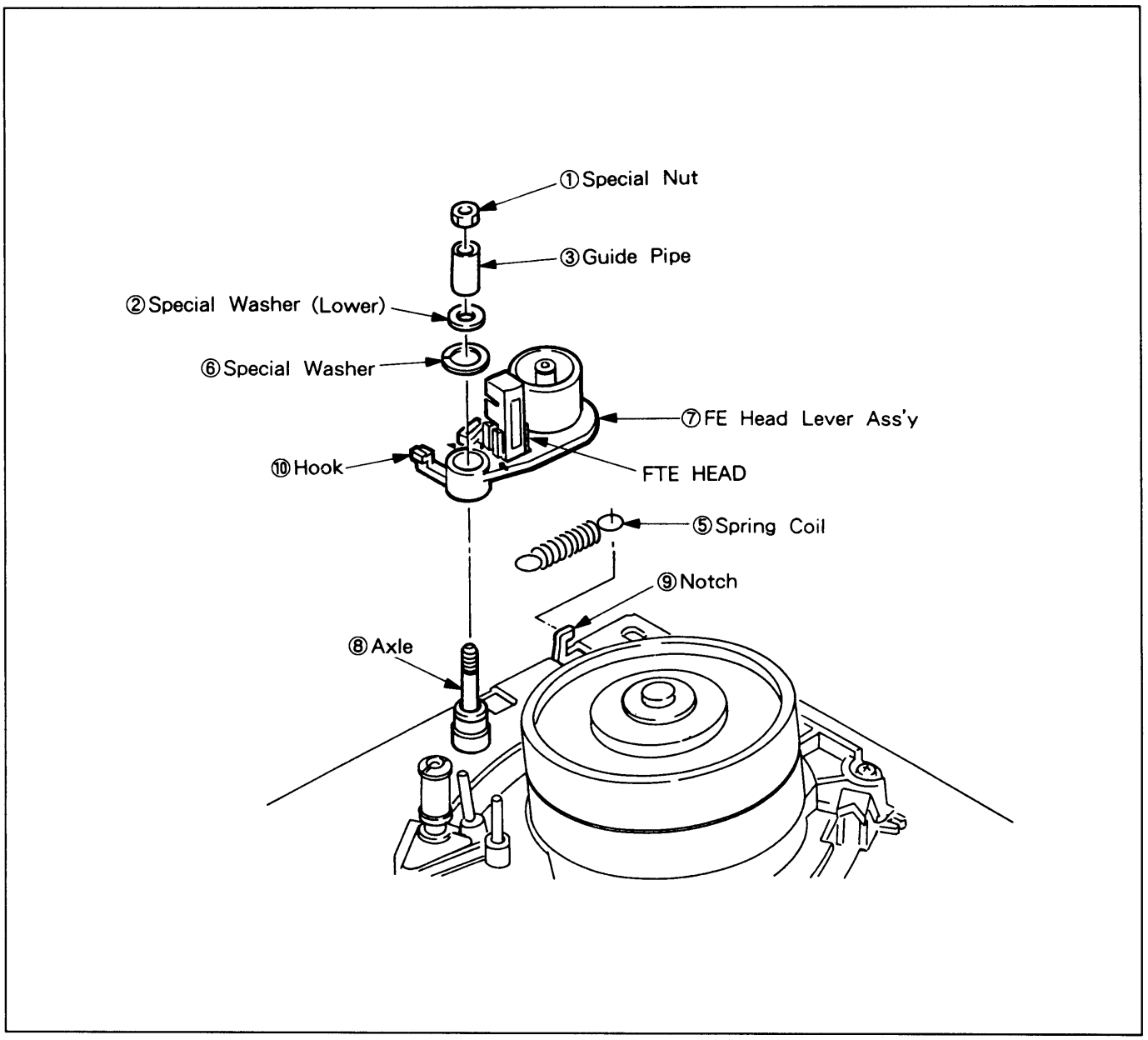


Fig. 2-10-1. Fixed Guide (S) & FE Lever Ass'y

2-10-2. IMPEDANCE ROLLER, FTE HEAD (See Fig. 2-10-2.)

1. Removal

1) Remove the FTE HEAD (full track erase head) ① connector.
2) Remove the special washer ②, then remove the IMPEDANCE ROLLER ③ and the washer ④.
3) Open the hook ⑤ a little and remove the FTE HEAD ①.

Note: Take care not to open the hook too much, otherwise it may be deformed or broken.

2. Remounting

1) Mount the FTE HEAD ① onto the FE HEAD LEVER ASS'Y ⑥. Confirm that the hook ⑤ is hooked to the FTE HEAD ①.
2) Mount the washer ④ and the IMPEDANCE ROLLER ③, in that order, onto the axle ⑦, then mount the special washer ②.
3) Connect the connector to the terminal of the FTE HEAD ①.

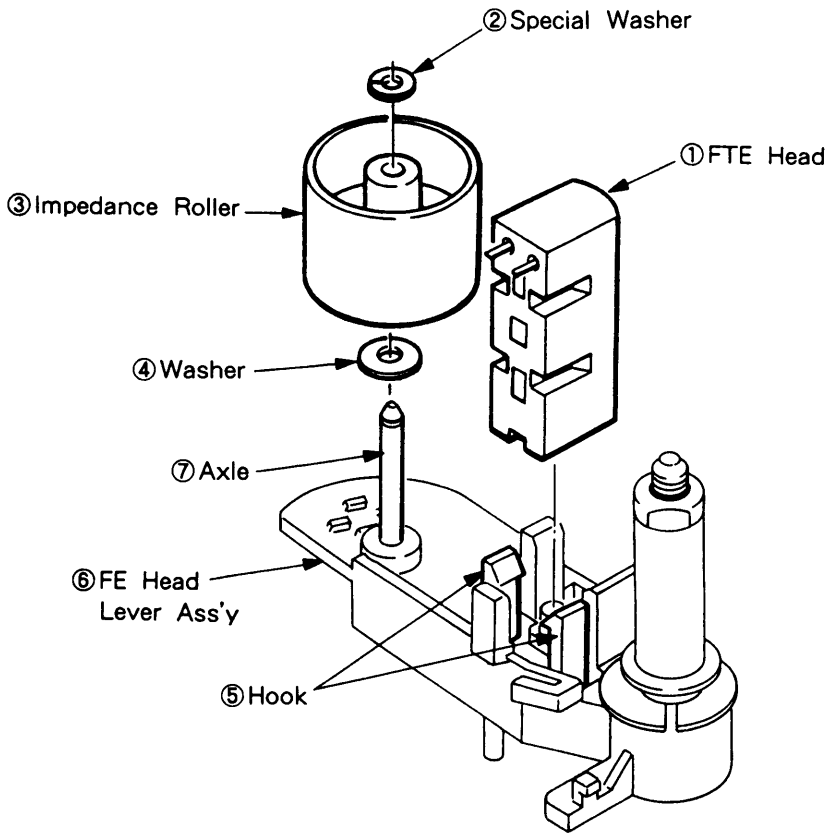


Fig. 2-10-2. Impedance Roller & FTE Head

2-10-3. FIXED GUIDE (T) (See Fig. 2-10-3.)

1. Removal

1) Remove the CAP ①.
2) Remove the special nut ②, then remove the special washer ③ (upper), the GUIDE PIPE ④, the special washer ③ (lower) and the SLEEVE ⑤, in that order.

2. Remounting

1) Mount the SLEEVE ⑤, the special washer ③ (lower), the GUIDE PIPE ④, the special washer ③ (upper) and the special nut ②, in that order, to the axle ⑥.
2) Mount the CAP ① onto the axle ⑥.

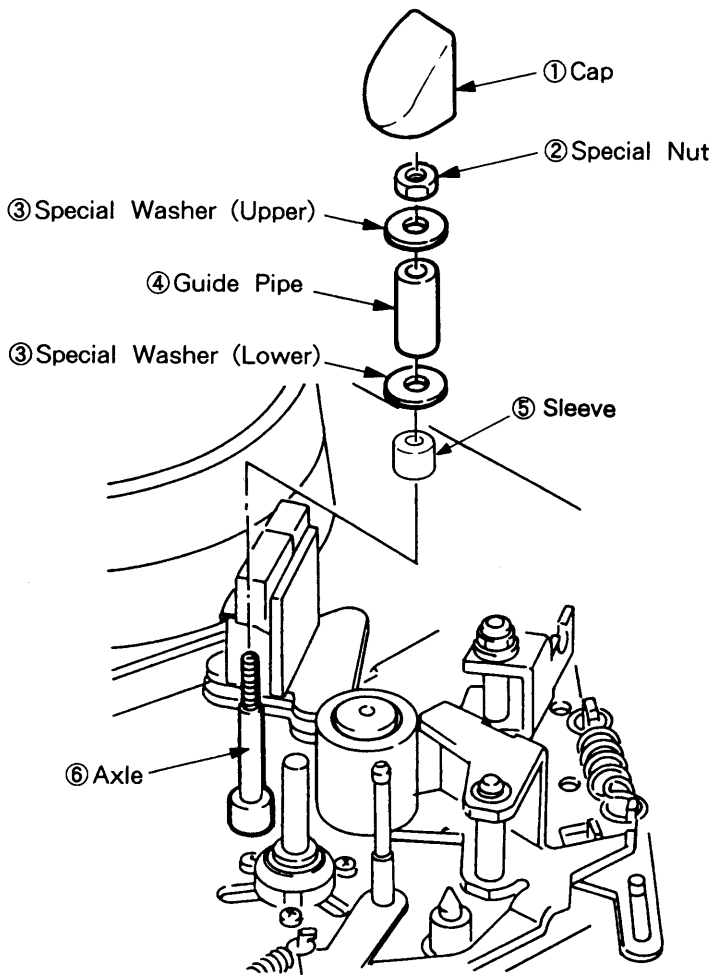


Fig. 2-10-3. Fixed Guide (T)

2-11. DRUM SECTION

2-11-1. DRUM MOTOR (ROTOR, STATOR) (See Fig. 2-11-1.)

1. Removal

1) Remove the screw ①, then remove the CYLINDER EARTH ASS'Y ②.
2) Remove the two screws ③, then remove the ROTOR ④ and the SPACER.
3) Remove the STATOR board connector.
4) Remove the three screws ⑤, then remove the STATOR ⑥.

2. Remounting

1) Mount the STATOR ⑥ with the three screws ⑤.
2) Mount the SPACER ⑪ onto the AXLE ⑫.
3) While aligning the ROTOR oval hole ⑦ with the ROTOR DISK hole ⑧, mount the ROTOR with the two screws ③.
4) Insert the connector ⑩.
5) While aligning the CYLINDER EARTH ASS'Y ② protuberance with the chassis hole ⑨, mount it with the screw ①.

Note 1: Use a torque driver (VHJ-0014) for mounting the STATOR ⑥ and the ROTOR ④. Set fastening torque to 3 kg-cm.

Note 2: When the drum unit has been replaced, perform a tape path adjustment as instructed in 5-4. and perform a PB PHASE adjustment of the servo circuit.

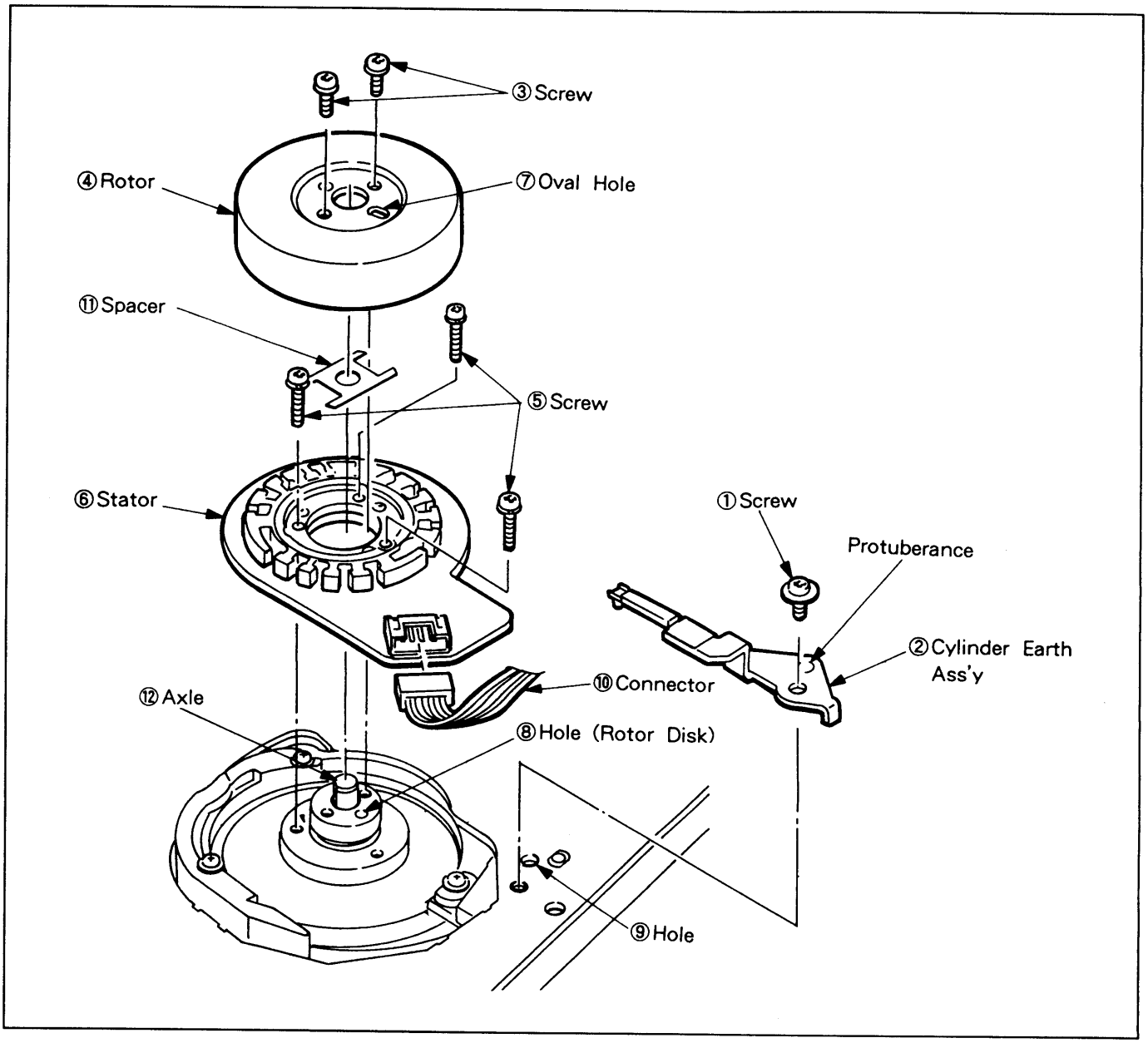


Fig. 2-11-1. Drum Motor

2-11-2. DRUM UNIT (See Fig. 2-11-2.)

1. Removal

1) For some models with the board located above the upper drum, remove the board.
2) Remove the flexible cable ① from the PRE-AMP UNIT (take care not to pull the flexible cable in the upward direction).
3) Remove the LOAD RACK only, as instructed in 2-4-1.
4) Remove the three screws ②, then remove the drum unit ③.

Note: When removing and remounting the drum unit, handle it carefully to protect it from scratches and dirt.

2. Remounting

1) While aligning the drum unit ③ to the protuberance, mount it to the drum base (CYLINDER BASE) ⑤ with the three screws ②.
2) Mount the ROAD RACK as instructed in 2-4-1.
3) Insert the flexible cable into the PRE-AMP UNIT.
4) Clean the drum unit.
5) Perform the tape path adjustment as instructed in 5-4. and perform the PB PHASE adjustment of the servo circuit.

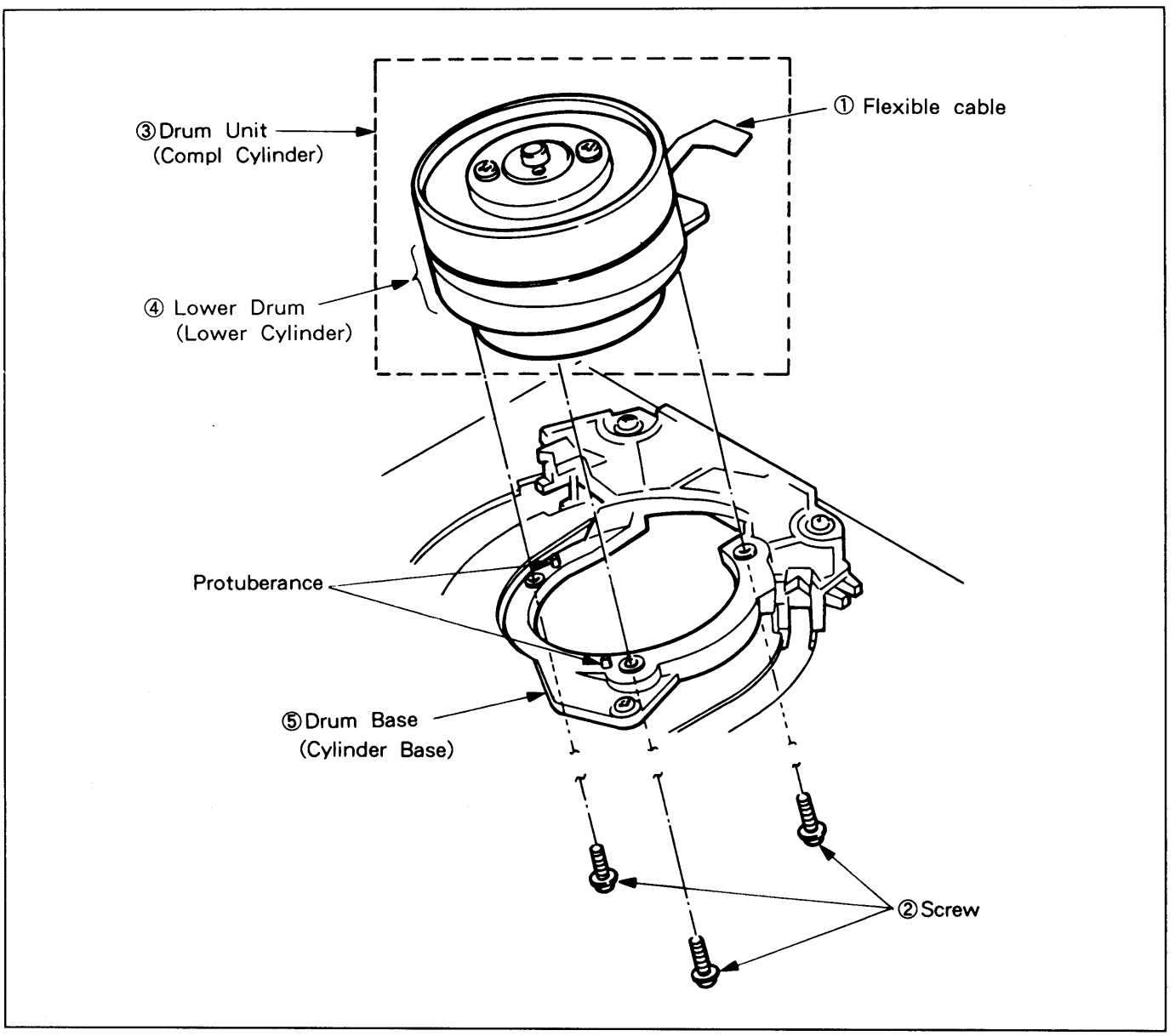


Fig. 2-11-2. Drum Unit (Compl Cylinder)

2-11-3. UPPER DRUM (Upper Cylinder)

1. Removal

1) Remove the two screws ①. (See Fig. 2-11-3.)
2) In case the RE (ROTARY ERASE) HEAD is attached to the upper drum (UPPER CYLINDER), remove the lead wires soldered from the P.C. board. (See Fig. 2-11-4.)
3) Turn the head removing jig (VHJ-0041) handle ② counterclockwise to lift up the stopper ③. (See Fig. 2-11-5.)
4) Insert the two long screws ④ of the jig into the screw holes ⑥ located on the head chip side of the upper drum (UPPER CYLINDER) ⑤, then mount by turning the handle clockwise.
5) While holding the jig so that the upper drum ⑤ does not rotate, turn the handle ② clockwise to remove the upper drum.
6) Remove the jig from the upper drum.

Note: Handle parts carefully to protect the drum from scratches and dirt, and the video head from damage.

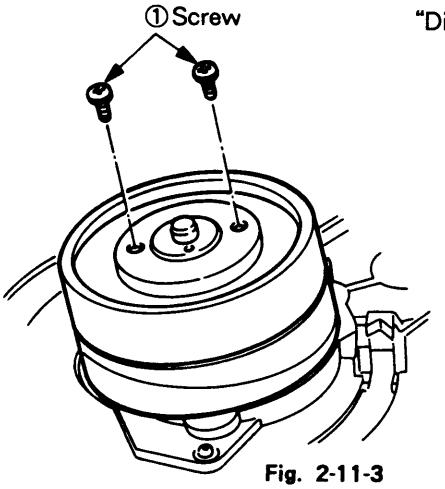


Fig. 2-11-3

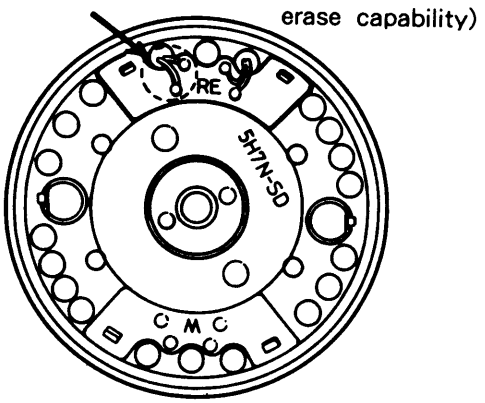


Fig. 2-11-4

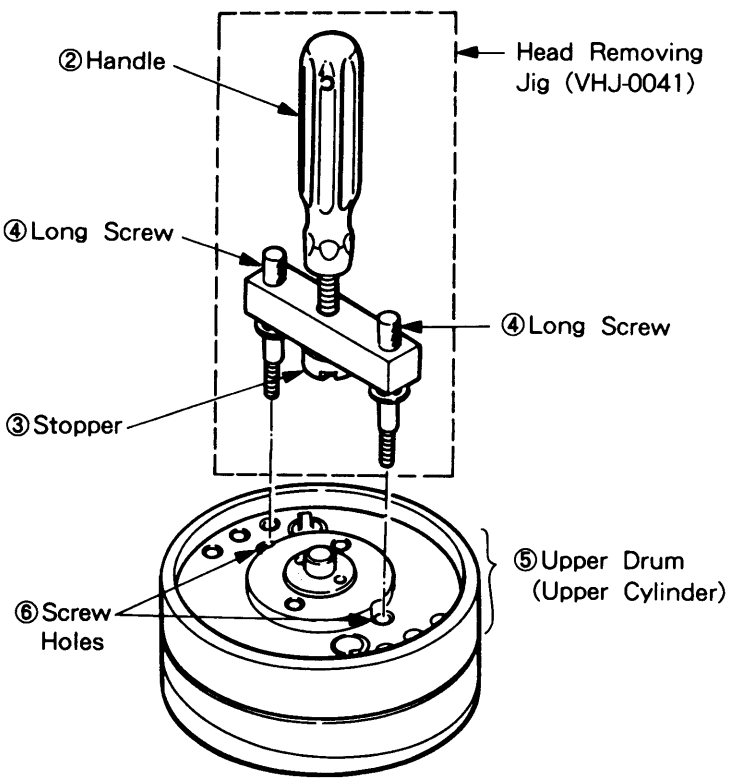


Fig. 2-11-5

Upper Drum (Upper Cylinder)

2. Remounting (See Fig. 2-11-6.)

1) Confirm that surfaces where the flywheel and the upper drum (UPPER CYLINDER) are engaged or make contact are free from scratches and dirt.
2) The code name ① of the drum is printed on the video head side of the upper drum ⑤ SP CH-1 (channel A, plus azimuth). The code name ① is set with in the rotary transformer terminal round hole side ② position of lower drum (LOWER CYLINDER), so that the two screw holes ③ of the upper drum are aligned with the two screw holes ④ of the flywheel. (Refer to 3. Recognizing the SP CH-1 Head side.)
3) In case the RE (ROTARY ERASE) HEAD is attached to the upper drum, pass the lead wires through the lead wire hole. (See Fig. 2-11-4.)
4) While keeping the upper drum ⑤ parallel to the lower drum (LOWER CYLINDER) ⑧, insert it completely into the flywheel.
5) Temporarily tighten the two screws ⑦ alternately a little at a time, then tighten them to a torque of 6 kg-cm using a torque driver (VHJ-0014) and a 3 mm bit (VHJ-0045).
6) In case the RE head is attached to the upper drum ⑤, solder the lead wires to the P.C. board. Solder the red lead wire to the R terminal, and the yellow lead wire to the Y terminal.

Note: When the upper drum has been replaced, perform a tape path adjustment as instructed in 5-4. and the PB PHASE adjustment of the servo circuit.

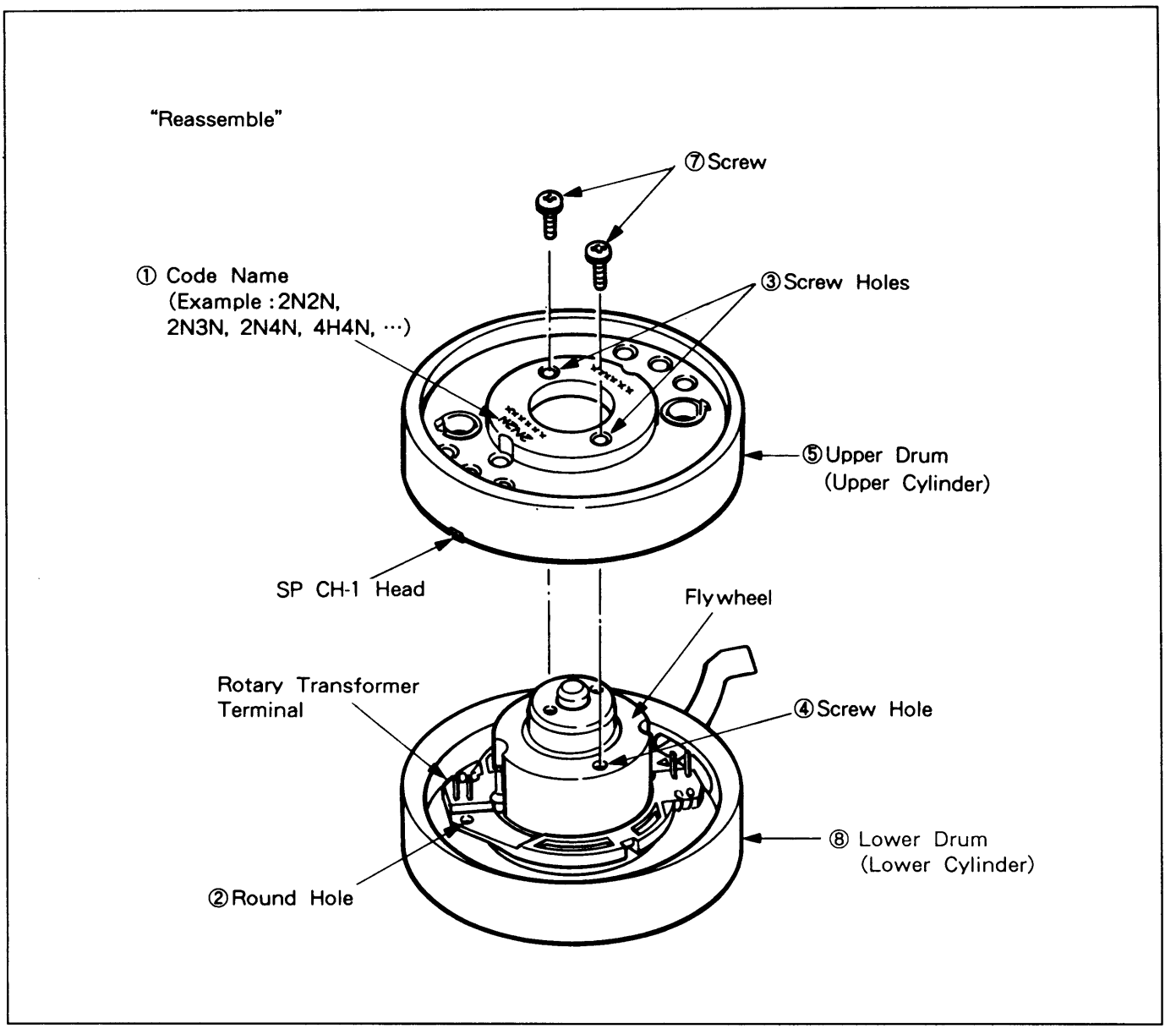
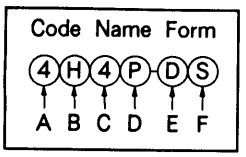


Fig. 2-11-6.

3. Recognizing the SP CH-1 Head Side

No playback picture can be obtained if the video head is not wired as a pair with the rotary transformer located inside the lower drum rotating section. Therefore, mounting position should be matched when mounting the upper drum. In the P91 mechanism series, the code name of the drum is printed on the SP CH-1 (CH-A, plus azimuth) side as a mark for mounting the upper drum. (See Fig. 2-11-7.) This code name differs according to the drum type, but its basic form is as follows :



A = Number of head bases
B = "N" for normal audio
"H" for HI-FI audio
C = Number of heads
D = TV system ("N" or "P")
EF = Code for detailed classification. Depending on drum type, it can also be just one character, or a blank space.

Examples of Detailed Classification Codes
V = Head with level difference
D = Compatible with digital units
S = SVHS-compatible

Examples of Code Names
2N2P, 2N2P-L, 2N2P-V, 2N2P-D, 2N3P, 2N4P, 4H4P, 4H4P-D

Moreover, there is a round hole with marking purposes on the SP CH-1 (CH-A, plus azimuth) side of the lower drum rotary transformer terminal. As shown in Fig. 2-11-8, there are two types of rotary transformer terminals (the number of pins differs according to the number of heads).

Note: When ordering parts such as drums (CYLINDERS), do not use the code names ; always refer to the parts list and order with the specified part numbers.

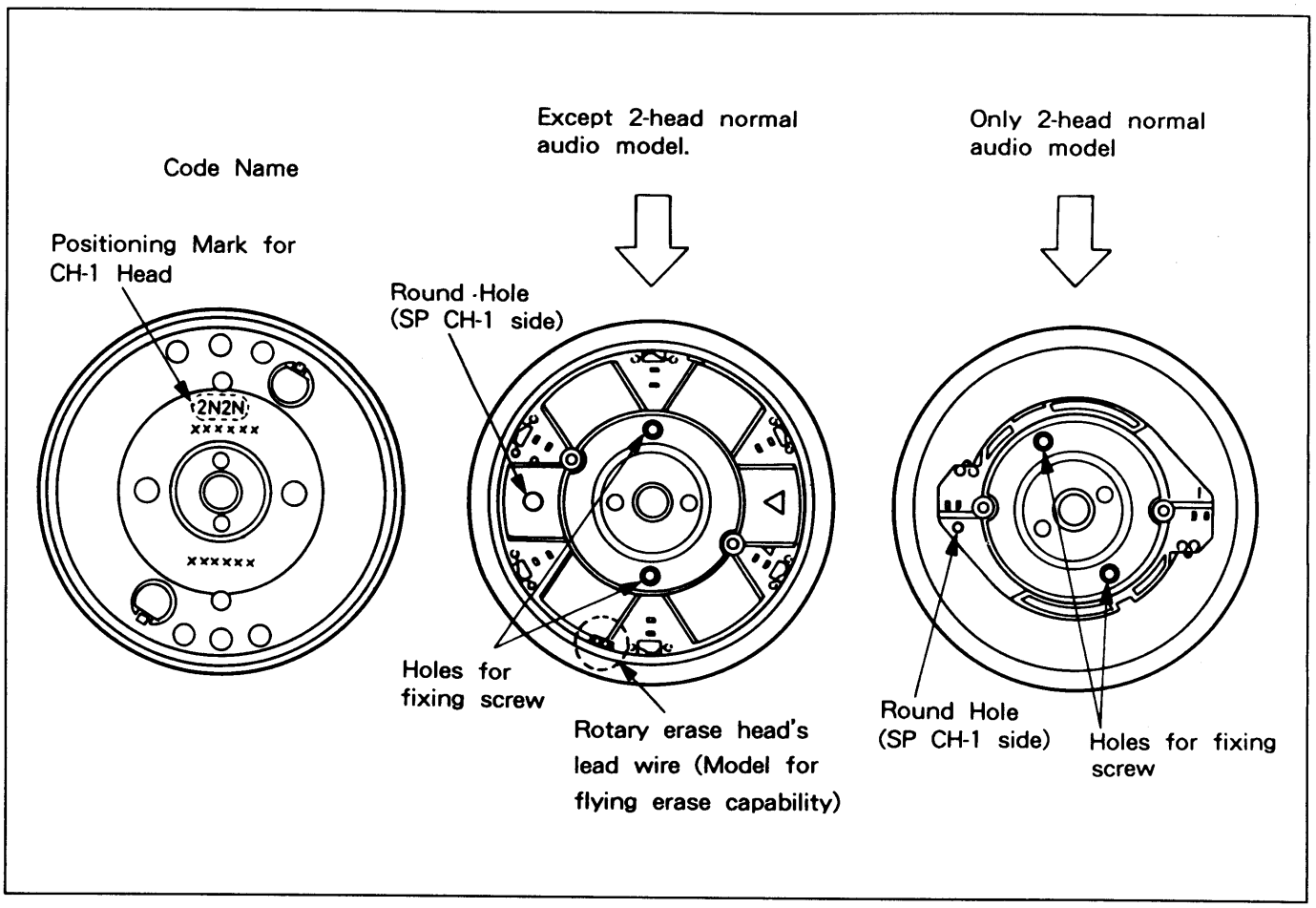

Except 2-head normal audio model.
Only 2-head normal audio model
Code Name
Positioning Mark for CH-1 Head
Round Hole (SP CH-1 side)
2N2N
Holes for fixing screw
Rotary erase head's lead wire (Model for flying erase capability)
Round Hole (SP CH-1 side)
Holes for fixing screw

Fig. 2-11-7. Upper Drum

Fig. 2-11-8. Lower Drum

2-12. AUTO HEAD CLEANING MECHANISM (See Fig. 2-12-1.)

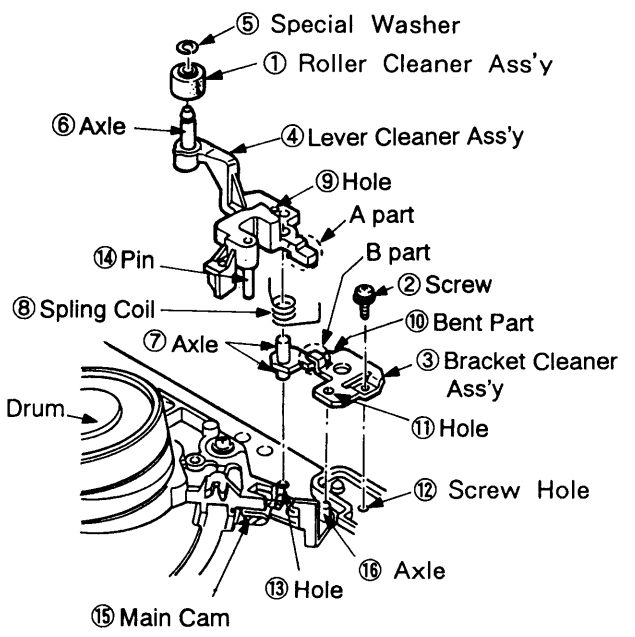
1. Removal

Note: • Do not hold the ROLLER CLEANER ASS'Y ① by bare hand. Use tweezers and gloves not soiled with grease or dust, etc.
• When the cleaning function deteriorates and replacing only ROLLER CLEANER ASS'Y ①, there is no need to perform item 4).

1) Make sure that the ROLLER CLEANER ASS'Y ① is not pressed against a drum (cylinder).
2) Remove the PRE-AMP UNIT and the PRE-AMP BRACKET.
3) Remove screw ②, then lift up and remove the BRACKET CLEANER ASS'Y ③.
4) With the BRACKET CLEANER ASS'Y ③ is fixed by finger, turn the LEVER CLEANER ASS'Y ④ 35° to 40° to clockwise, then lift up and remove.
5) Remove the special washer ⑤, then remove the ROLLER CLEANER ASS'Y ①.

2. Remounting

1) Mount the ROLLER CLEANER ASS'Y ① and the special washer ⑤ to the axle ⑥ of LEVER CLEANER ASS'Y.
Mount the ROLLER CLEANER ASS'Y ① so that the mark shown in Fig. A is up side. If the mark is down side, noise may occur.
2) Mount the SPRING COIL ⑧ and the LEVER CLEANER ASS'Y ④ to the axle ⑦ of BRACKET CLEANER ASS'Y. At this time, hook the SPRING COIL ⑧ to the hole ⑨ of the LEVER CLEANER ASS'Y and the bent part ⑩ of the BRACKET CLEANER ASS'Y. "A part" of the LEVER CLEANER ASS'Y should be under "B part" of the BRACKET CLEANER ASS'Y.
3) Fix the BRACKET CLEANER ASS'Y ③ on screw hole ⑫ by screw ②. Before fasten screw ②, insert hole ⑪ of the BRACKET CLEANER ASS'Y to axle ⑯, axle ⑦ to hole ⑬ to match positions. Pin ⑭ of the LEVER CLEANER ASS'Y should be run along the circumference of the MAIN CAM ⑮ not to be came off.
4) The upper side of the lower drum should be within approx. 2mm from the lower side of the ROLLER CLEANER ASS'Y as shown in Fig. B.
5) Mount the PRE-AMP BRACKET and the PRE-AMP UNIT.



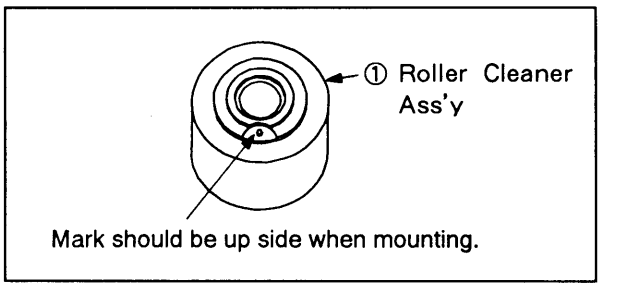


Fig. A

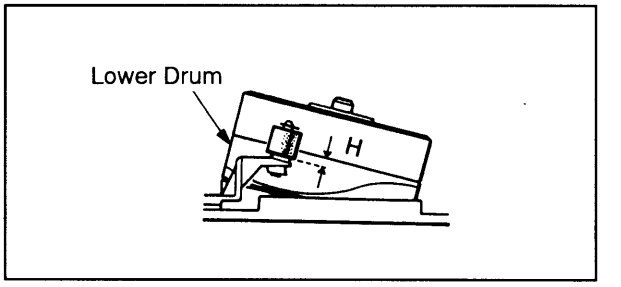
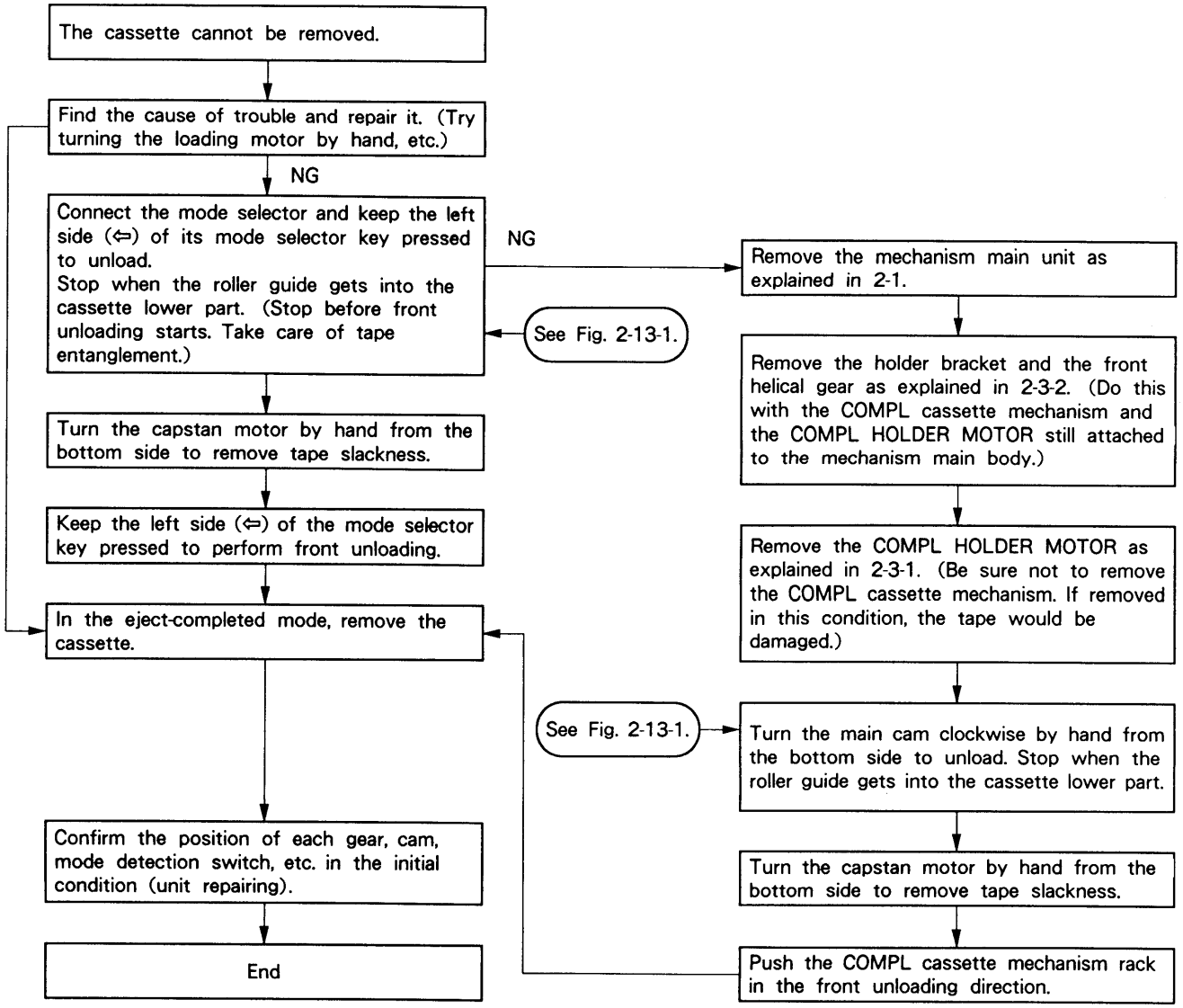


Fig. B

Fig. 2-12. Auto Head Cleaning Mechanism

2-13. HOW TO PROCEED WHEN THE CASSETTE CANNOT BE REMOVED


The cassette cannot be removed.
Find the cause of trouble and repair it. (Try turning the loading motor by hand, etc.)
NG
Connect the mode selector and keep the left side (⇦) of its mode selector key pressed to unload.
Stop when the roller guide gets into the cassette lower part. (Stop before front unloading starts. Take care of tape entanglement.)
NG
See Fig. 2-13-1.
Turn the capstan motor by hand from the bottom side to remove tape slackness.
Keep the left side (⇦) of the mode selector key pressed to perform front unloading.
In the eject-completed mode, remove the cassette.
Confirm the position of each gear, cam, mode detection switch, etc. in the initial condition (unit repairing).
End
Remove the mechanism main unit as explained in 2-1.
Remove the holder bracket and the front helical gear as explained in 2-3-2. (Do this with the COMPL cassette mechanism and the COMPL HOLDER MOTOR still attached to the mechanism main body.)
Remove the COMPL HOLDER MOTOR as explained in 2-3-1. (Be sure not to remove the COMPL cassette mechanism. If removed in this condition, the tape would be damaged.)
See Fig. 2-13-1.
Turn the main cam clockwise by hand from the bottom side to unload. Stop when the roller guide gets into the cassette lower part.
Turn the capstan motor by hand from the bottom side to remove tape slackness.
Push the COMPL cassette mechanism rack in the front unloading direction.

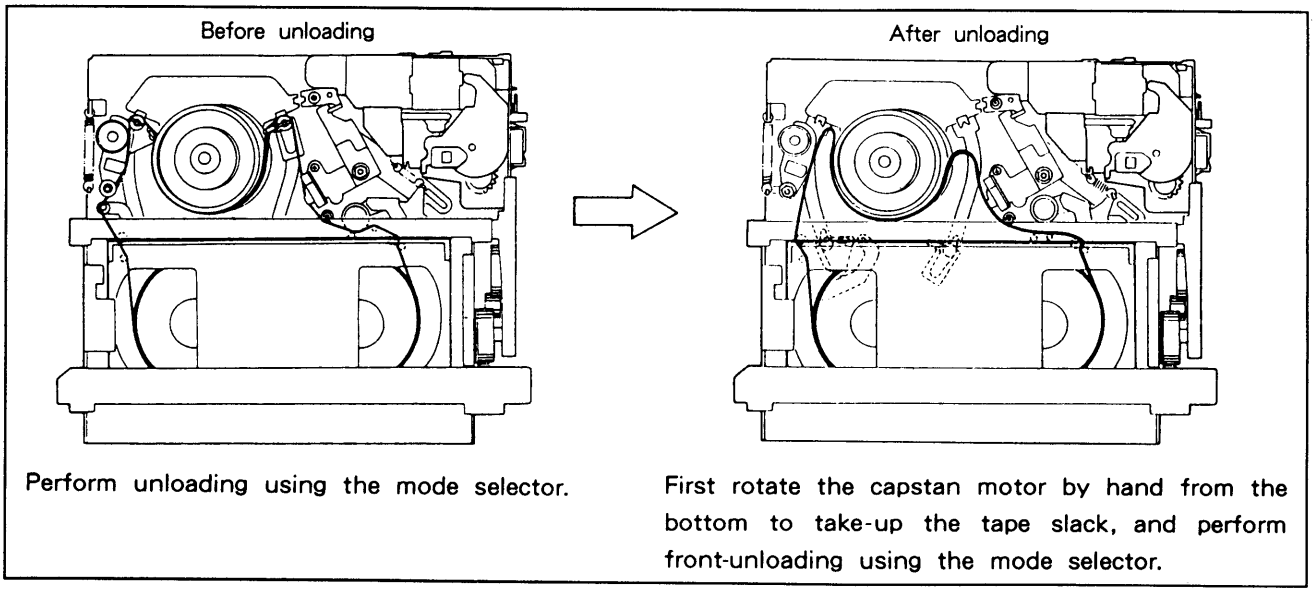
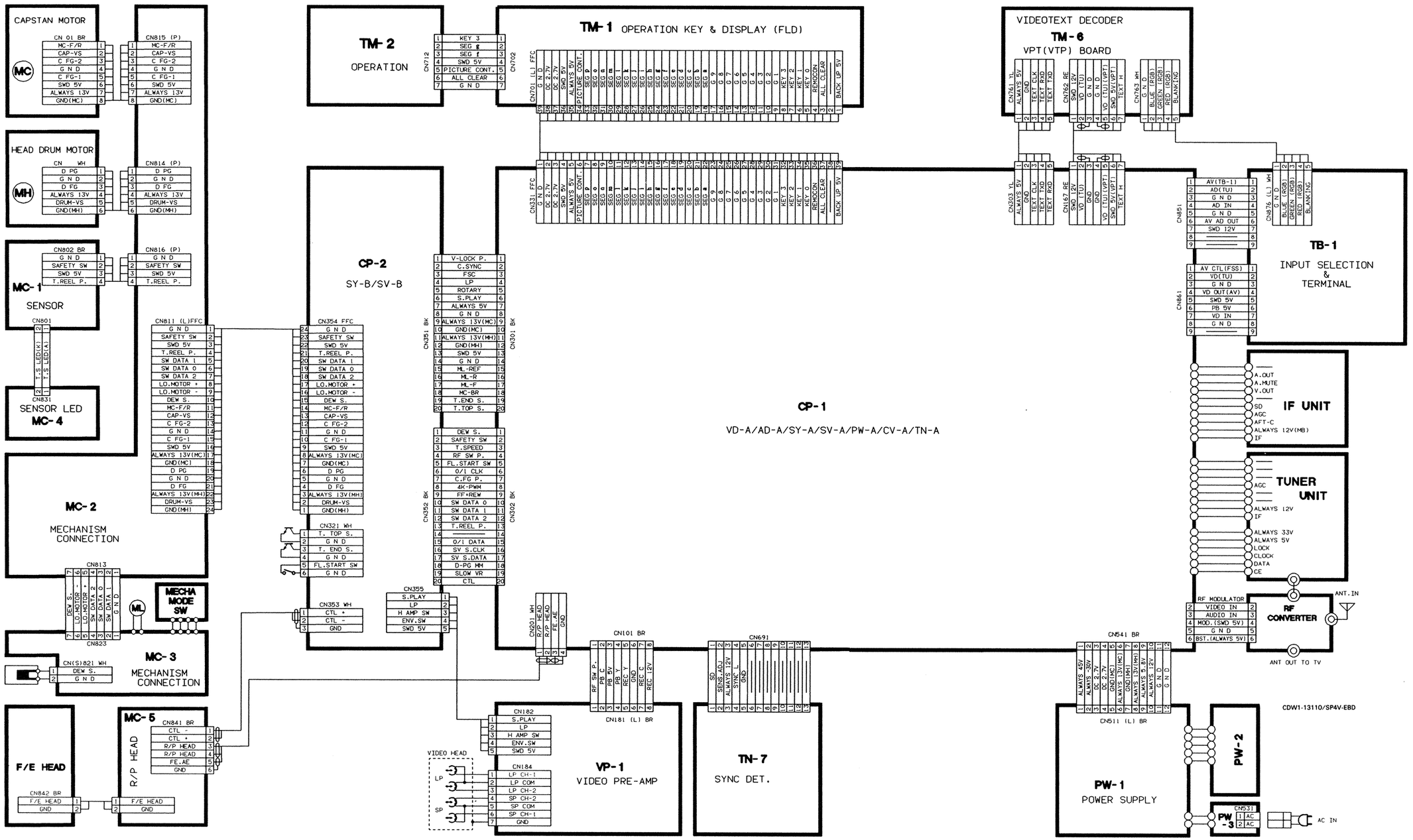

Before unloading
After unloading
Perform unloading using the mode selector.
First rotate the capstan motor by hand from the bottom to take-up the tape slack, and perform front-unloading using the mode selector.

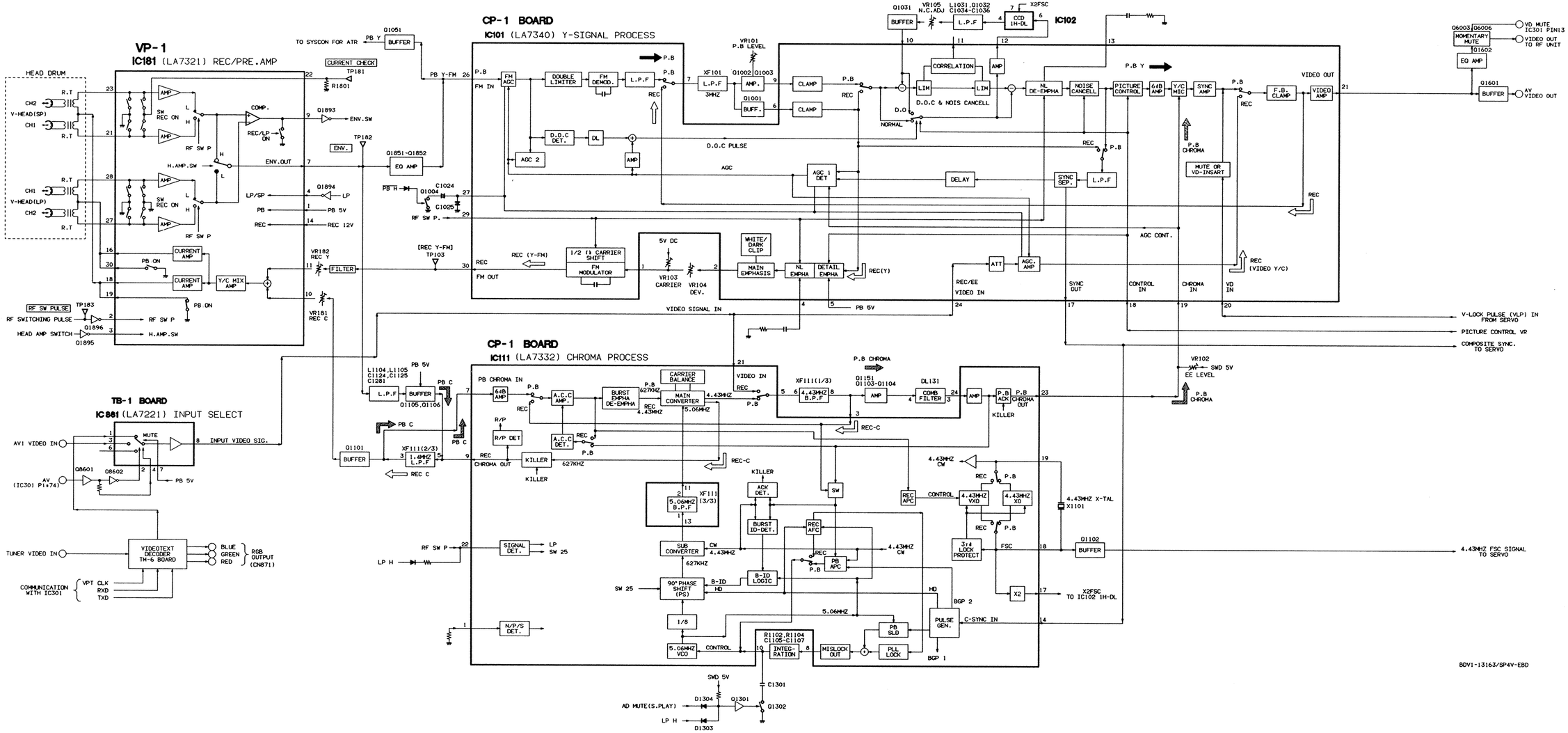
Fig. 2-13-1.

3. Block Diagrams

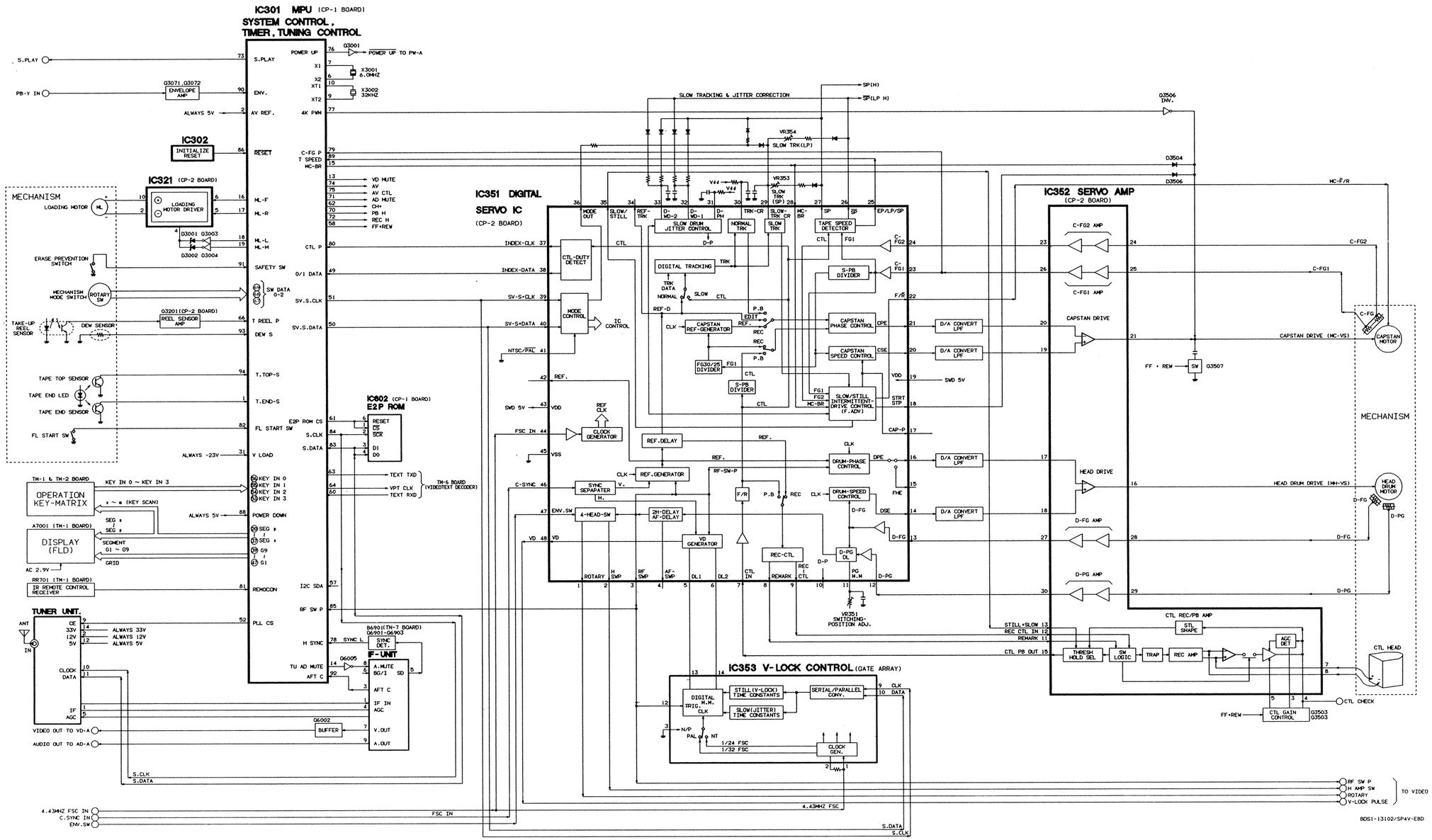
3-1. OVERALL WIRING DIAGRAM



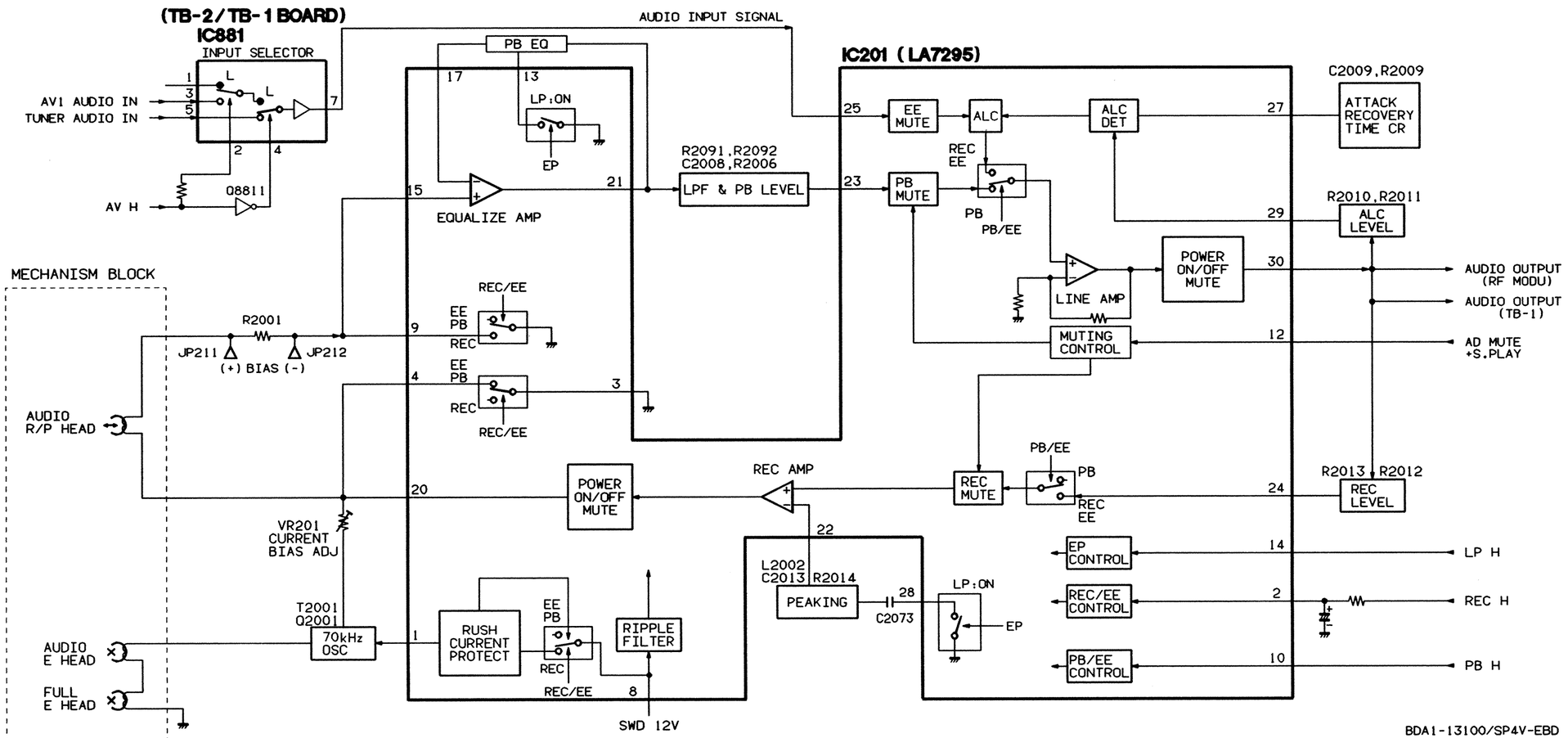
3-2. VIDEO CIRCUIT BASIC BLOCK DIAGRAM



3-3. SYSTEM CONTROL & SERVO CIRCUIT BASIC BLOCK DIAGRAM



3-4. AUDIO CIRCUIT BASIC BLOCK DIAGRAM



4. Mechanism Maintenance and Checking

4-1. PERIODIC CHECKING AND MAINTENANCE ITEMS AND SERVICE JIGS

The following maintenance and periodic checking procedures are recommended to ensure proper operation, and to protect the tape from dirt and damage. Also, these procedures should always be followed after repairing the unit.

4-1-1. PERIODIC CHECK ITEMS

○ Cleaning ◎ Confirmation △ Lubrication

Part \ Usage Time (hours)		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	Remarks
Tape Guide System	Tape running surfaces	○	○	○	○	○	○	○	○	○	○	
	ACE head	○	○	○	○	○	○	○	○	○	○	
	Drum (cylinder)	○	○	○	○	○	○	○	○	○	○	Head life depends heavily on operating conditions.
Drive System	Loading belt	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
	Reel drive belt	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
	Intermediate gear, pulley axles		△		△		△		△		△	Absolutely avoid oil on tape running surfaces.
	Capstan axles		△		△		△		△		△	
	Loading motor		◎		◎		◎		◎		◎	
Performance Check	Back tension torque		◎		◎		◎		◎		◎	50 ± 10 g-cm
	Brake system		◎		◎		◎		◎		◎	
	FF, REW, REV, PLAY torque		◎		◎		◎		◎		◎	FWD : 600 g-cm and over REW : 750 g-cm and over PLAY : 100 to 160 g-cm REV : 150 to 240 g-cm

Note: The back tension torque is the value that has been measured by the cassette torque meter (VHJ-0016). The torque of FF, REV, REW, and PLAY represent those measured with them locked by the torque guage. FF and REW are values 2 seconds after starting.

4-1-2. CLEANING

1. Drum (COMPL CYLINDER) and Video Heads (See Fig. 4-1-1.)

1) Wrap a chamois leather around your finger and moisten it with methyl alcohol.
2) Move the chamois leather to left and right several times on the video head to clean. There is a video head also on the opposite side, so clean it likewise. In Hi-Fi models, clean the audio head also.
3) Clean the tape path surface of the cylinder in the same way.

Note: Always turn power off before cleaning. Never move the chamois leather vertically or apply too much force to the head ; it may be damaged.

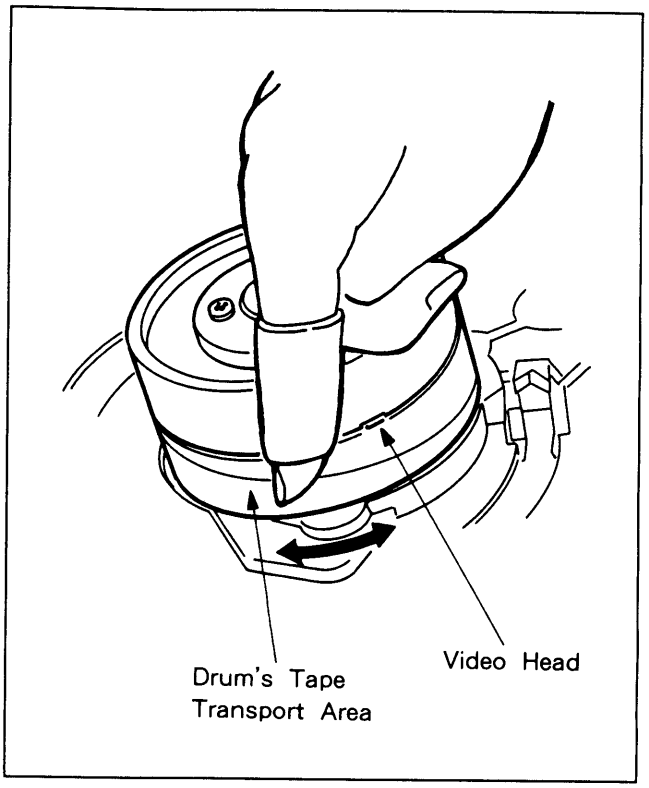


Fig. 4-1-1.

2. Cleaning of the Tape Guide System (See Fig. 4-1-2.)

Set the EJECT mode and clean the tape guide system (tape guides, impedance roller, FTE head, ACE head, pinch rollers, capstan axles, etc.) with a chamois leather moistened with methyl alcohol.

Note: Make sure that no oil, grease, etc. adhere to the chamois leather and that heads are not damaged.

3. Cleaning of the Drive System

Clean the drive system (loading belt, reel drive belt, pulley, supply reel table, etc.) with a soft cloth moistened with methyl alcohol.

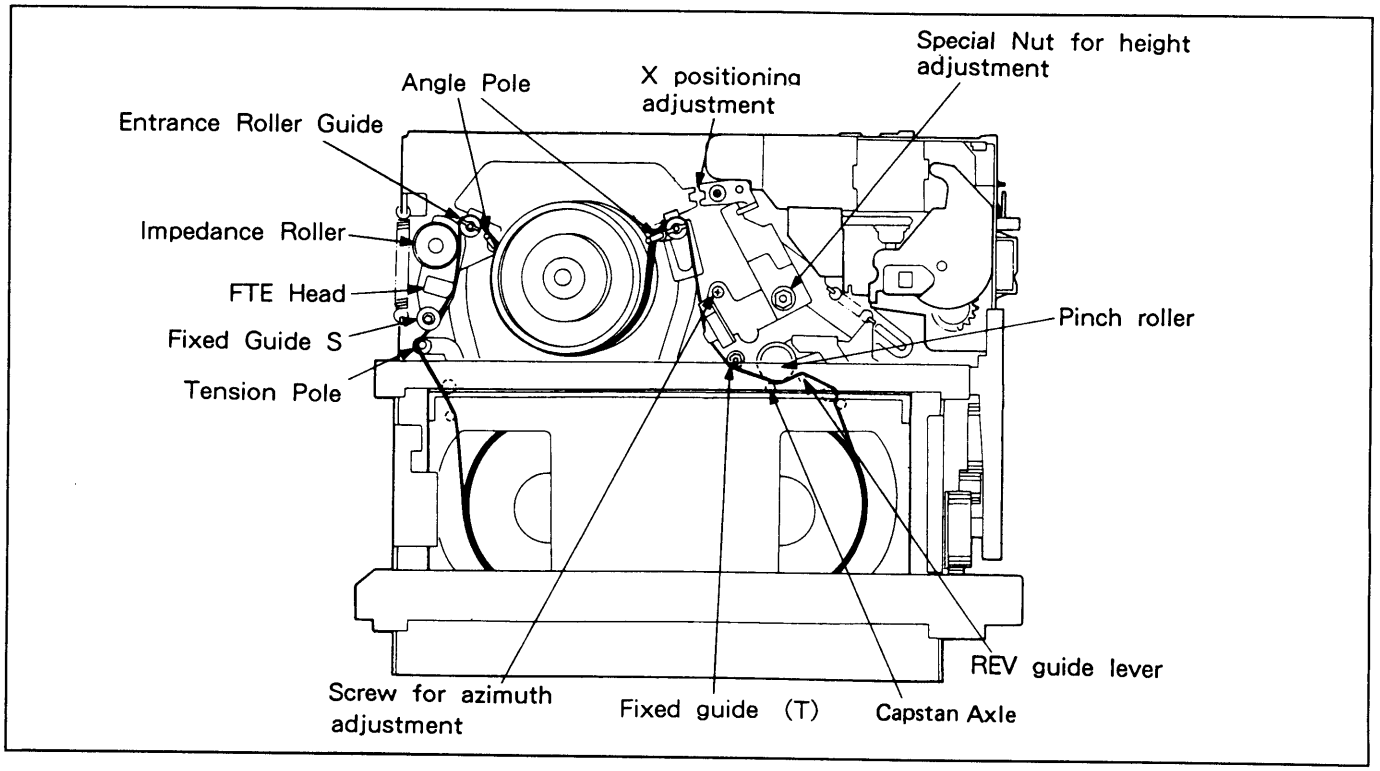
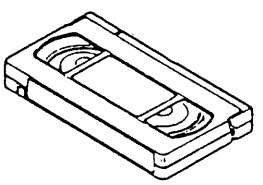


Fig. 4-1-2. Cleaning

4-1-3. Service Jigs

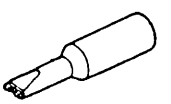
No.	Jig	Jig No.	Remarks
1	Alignment tape	VHJ-0008	SP color bar, 1kHz (normal)
2	Alignment tape	VHJ-0009	SP monoscope, 7kHz (normal)
3	Alignment tape	VHJ-0052	EP monoscope, 3kHz (Normal)
4	Eccentric screwdriver	VHJ-0003	For tape path adjustment
5	Nut box	VHJ-0048	For tape path fixed guide removal
6	Torque gauge	VHJ-0004	For reel take-up torque measurement
7	Cassette torquemeter	VHJ-0016	For back tension torque measurement
8	Position adjustment gauge	VHJ-0049	For position adjustment
9	Torque gauge screwdriver	VHJ-0014	For screw fastening torque adjustment
10	3mm dia. bit for torque screwdriver	VHJ-0045	Spare bit for the torque gauge screwdriver
11	Video head removing tool	VHJ-0041	For upper drum removal
12	Cassette stand plate gauge	VHJ-0001	For reel height adjustment
13	Mode selector	VHJ-0050	For mechanism mode selection
14	26-pin flexible flat cable	VHJ-0064	Spare cable for mode selector
15	Mode selector relay board	VHJ-0087	Relay board for mode selector
16	REV guide lever removing tool	VHJ-0073	For REV guide lever removal

VHJ-0008, VHJ-0009, VHJ-0052



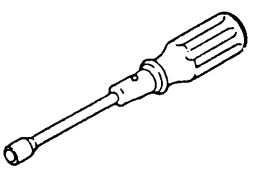
No. 1, 2, 3

VHJ-0003



No. 4

VHJ-0048

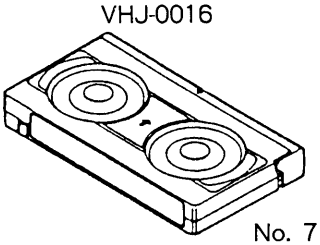


No. 5

VHJ-0004

No. 6

VHJ-0016



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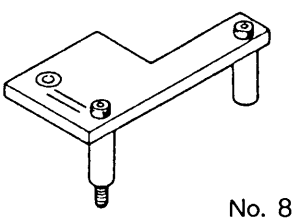
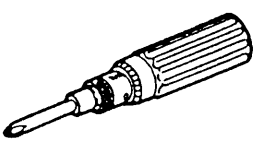
VHJ-0049



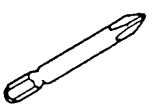
No. 8

VHJ-0014



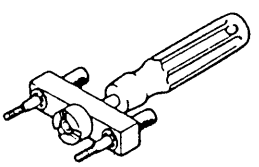
No. 9

VHJ-0045



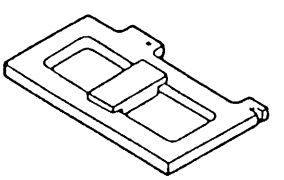
No. 10

VHJ-0041



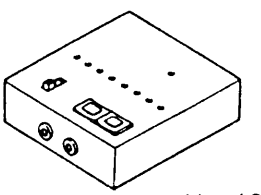
No. 11

VHJ-0001



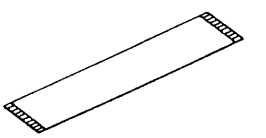
No. 12

VHJ-0050



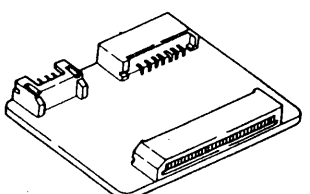
No. 13

VHJ-0064



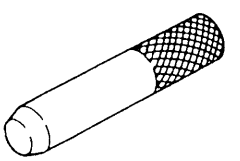
No. 14

VHJ-0087



No. 15

VHJ-0073



No. 16

4-2. MODE SELECTOR (VHJ-0050) HANDLING INSTRUCTIONS

The mode selector drives the loading motor of the P91 mechanism with its internal batteries (UM-2 × 4 = 6V), using LEDS to indicate the mode (EJECT, INITIAL, BRAKE, STOP/REW/FWD, STILL, PLAY, IDLER, REV) simultaneously with EJECT⇔REV mode changes.
Instead of the internal batteries, an external DC 6V power supply can also be used.

4-2-1. PART NAMES (See Fig. 4-2-1)

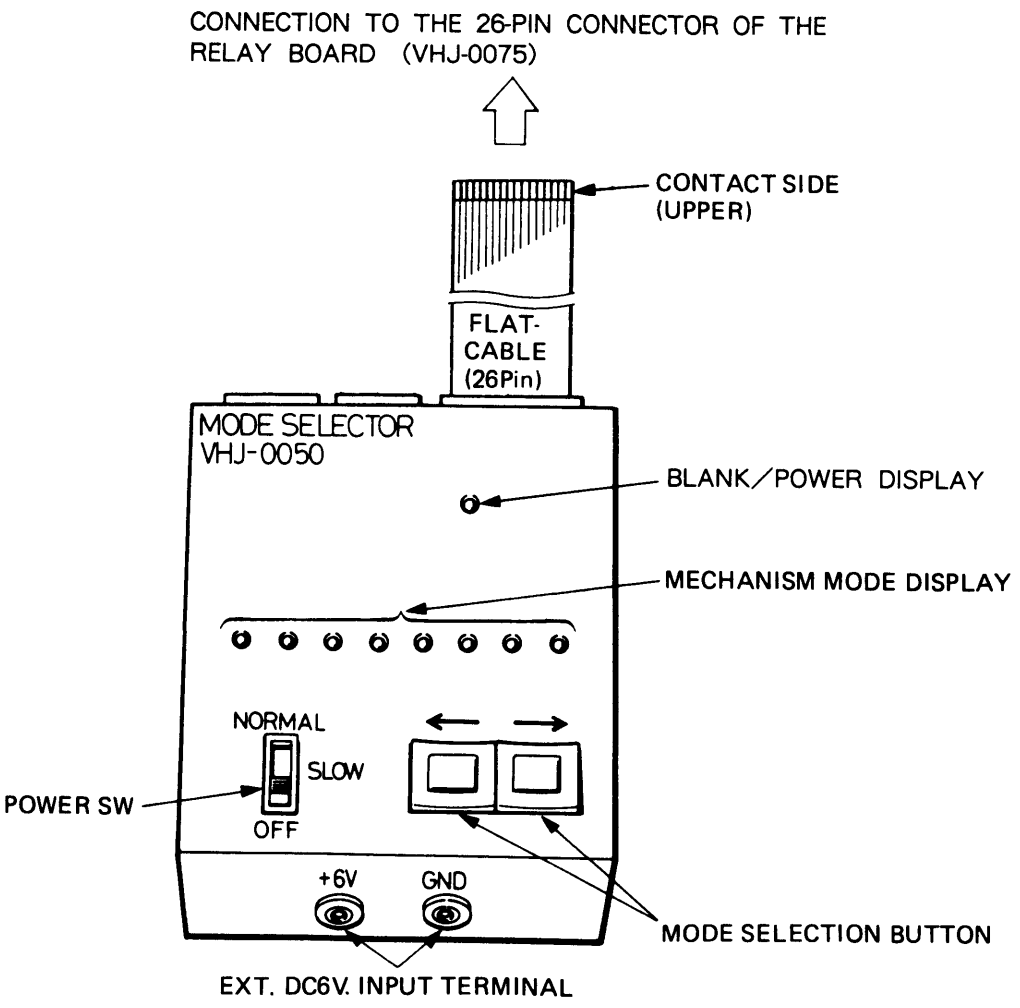


Fig. 4-2-1.

4-2-2. CONNECTION METHOD (See Fig. 4-2-2.)

1) Remove the 24-pin flat cable extending from the COMPL MC-2 board connector (CN811) from the connector of the system control circuit board, and connect it to the 24-pin connector of mode selector relay board (VHJ-0087).
2) Remove the 6-wire cable extending from the cassette holder section from the connector of the system control circuit board and connect it to the 6-pin connector of the mode selector relay board (VHJ-0087).
3) Connect a supplied 26-pin flat cable (VHJ-0064) of the mode selector (VHJ-0050) between the mode selector body and the 26-pin connector of the mode selector relay board (VHJ-0087).

Note: Care should be taken to avoid mistaking the direction of the contacting side when connecting a flexible flat cable.

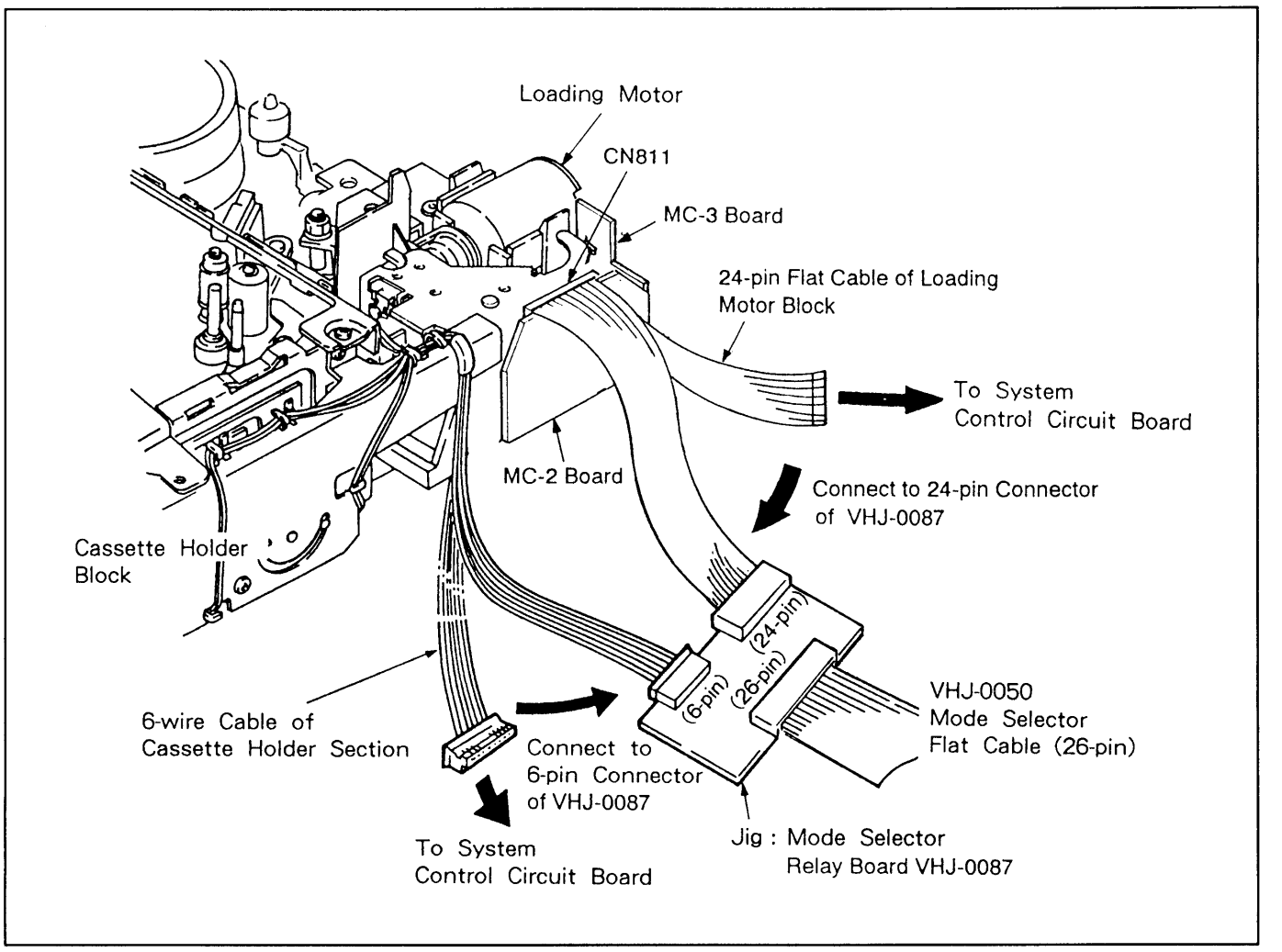


Fig. 4-2-2. Connection

4-2-3. HANDLING METHOD

1) The mode changes in sequence of EJECT, INITIAL, BRAKE, STOP/REW/FF, STILL, PLAY, IDLER, REV when the right side (⇨) of the mode selector button is kept on pressing.
2) To change the mode from REV to EJECT, press the left side (⇨) of the mode selector button to select the desired mode.
3) In the mid position of each mode during a shift to other mode, the "BLANK" LED lights. But the "PLAY", "IDLER", "REV" LEDs light between the EJECT mode and the INITIAL mode. Be sure therefore to check the mechanism body to see just what state the mechanism is in.
   Incidentally, if the mode selector is not connected to the mechanism, the "BLANK" LED lights to indicate the power ON.
4) The SLOW position of POWER switch makes relatively slow motions in comparison with the NORMAL position.

Note 1: The mode selector drives the loading motor only, not affecting the head drum motor and the capstan motor. When using the mode selector with a cassette loaded, turn the capstan motor manually to remove tape slackness, preventing tape entanglement.

Note 2: If the Left side (⇦) of the mode selector (VHJ-0050) key is kept pressed with the COMPL cassette mechanism removed, it might get past the EJECT position, causing the front helical gear and the front worm gear to get disengaged.

In this condition, since the front helical gear will not turn even if the right side (⇨) of the mode selector key is pressed, rotate (push) the front helical gear clockwise by hand and engage it with the front worm gear. As there is a misalignment between the mechanism main body operation mode (indicated by the mode selector indicator lamps) and the front loading mechanism operation mode, keep the right side (⇨) of the mode selector key pressed until the front helical gear and the front loading gear of the front loading mechanism get back to the initial condition. (Refer to A and B in Fig. 2-3-2 of section 2-3-2. Loading Motor.)

When the front loading mechanism returns to the initial condition, operation mode of the whole mechanism gets back to normal, matching the mode shown by the mode indicator lamps (mode EJECT would not be properly indicated during eject).

Sometimes, engagement of the front helical gear with the front worm gear is delayed and operation mode. The mechanism main body gets too much ahead and the front loading mechanism mode cannot be switched to the initial condition. In that case, press the Left side (⇦) of the mode selector key, setting the mechanism main body operation mode back to EJECT (rotation of the mode cam and the MAIN CAM stops).

Note 3: The mode indicator lamps show the mechanism operation mode, but the EJECT lamp may sometimes fail to indicate the actual mechanism operation mode.

When setting the mechanism to the EJECT or INITIAL mode for dismounting or reassembling, fine adjustment of the each gear and cam, etc., marking positions is required after the mode indicator lamp has lighted up. Perform this with the mode selector switch in the SLOW position.

5. Mechanism Adjustment

5-1. OPERATING THE MECHANISM WITH NO CASSETTE INSERTED (See Fig. 5-1-1.)

1) Attach black vinyl tape to the T. END and T. TOP sensors to prevent light from entering.
2) Push the TRAY LOCK LEVER in the direction of the arrow to maintain the unlocked condition. Release the lever just before the TRAY starts moving down.
3) In this condition, operation is possible in every mode. However, the following procedures are necessary to operate the unit in the REC, REW and R-SEARCH modes.

REC mode : Push the SAFETY SW LEVER to turn the SAFETY SWITCH (Erasure Prevention Switch) ON, then press the REC button. If the SAFETY SWITCH is not turned ON, the unit will enter the EJECT mode.

REW/R-SEARCH : After pressing the REW button, turn the TAKE-UP REEL ASS'Y by hand. Otherwise, the reel sensor will operate, setting into the INITIAL mode after 2 to 3 seconds.

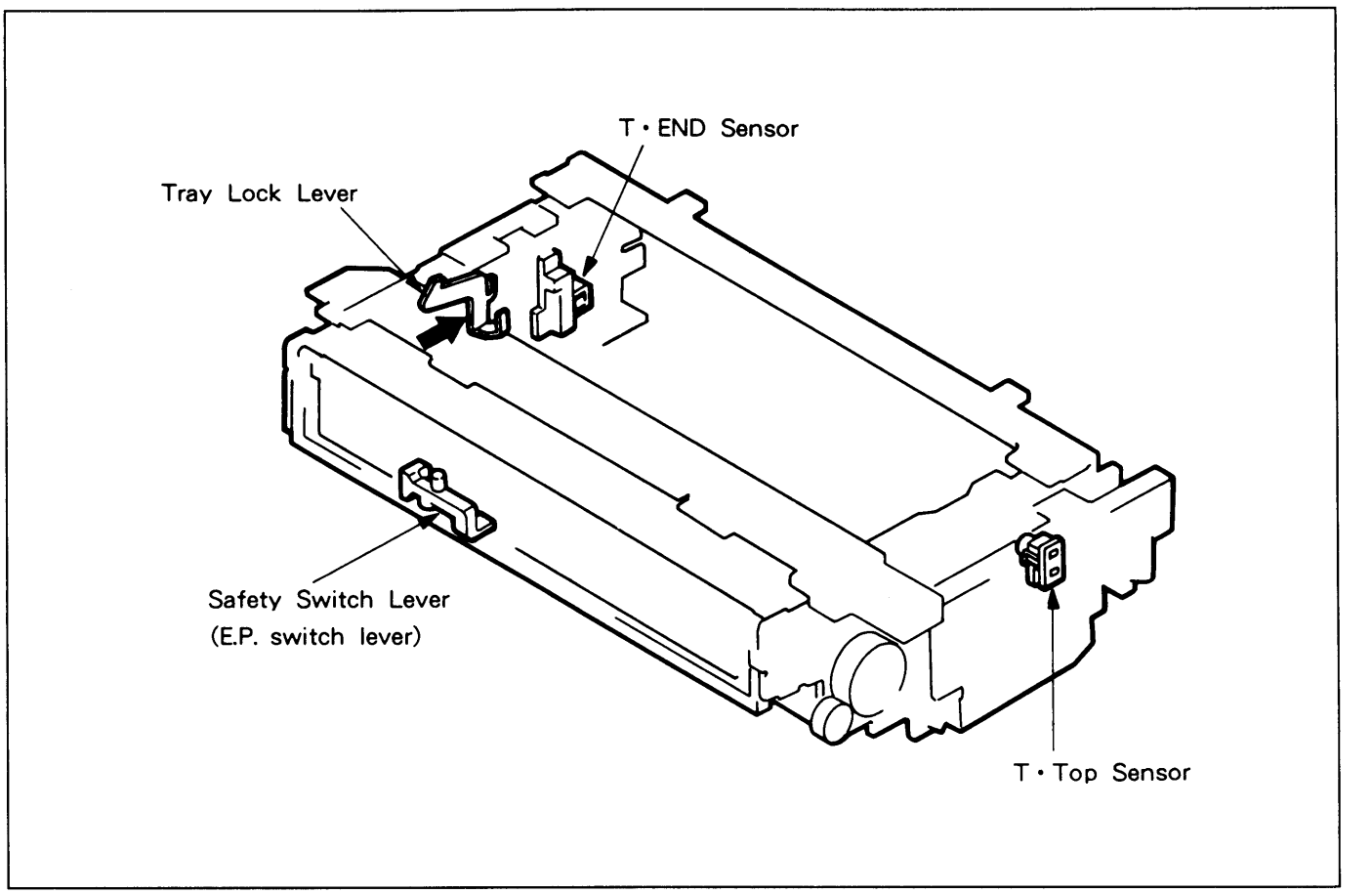


Fig. 5-1-1. Preparations for Adjustment

5-2. REEL TABLE HEIGHT ADJUSTMENT AND TORQUE CHECK

5-2-1. REEL TABLE HEIGHT (See Fig. 5-2-1.)

If the SUPPLY REEL ASS'Y or the TAKE-UP REEL ASS'Y is replaced, it will be necessary to adjust the REEL TABLE height.

(1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
(2) Attach the cassette stand plate gauge (VHJ-0001) and slide the gauge in the direction of the arrows.
(3) Confirm that, when the gauge stops, the REEL TABLEs are not in contact with surface A of the plate and are in contact with surface B.
(4) If the REEL TABLE is in contact with surface A, remove a spacer and check again.
(5) If the REEL TABLE is not in contact with surface B, add a spacer and check again.
(6) Remove the cassette stand plate gauge.
(7) Set the EJECT mode with the mode selector.
(8) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.

Note:

- Adjust the reel table height by adding or removing spacers (0.13t, 0.25t, 0.3t, 0.4t and 0.5t) as appropriate so that the height meets the specifications. Use the same method for both the TAKE-UP REEL TABLE and the SUPPLY REEL TABLE.
  (The 0.5t washer is included as the standard washer for the SUPPLY REEL ASS'Y. The 0.4t washer is included as the standard washer for the TAKE-UP REEL ASS'Y.)
- If the height of the reel table is not within the specified value, the tape edge might be damaged as a result, or the tape path adjustment might not be possible to make.

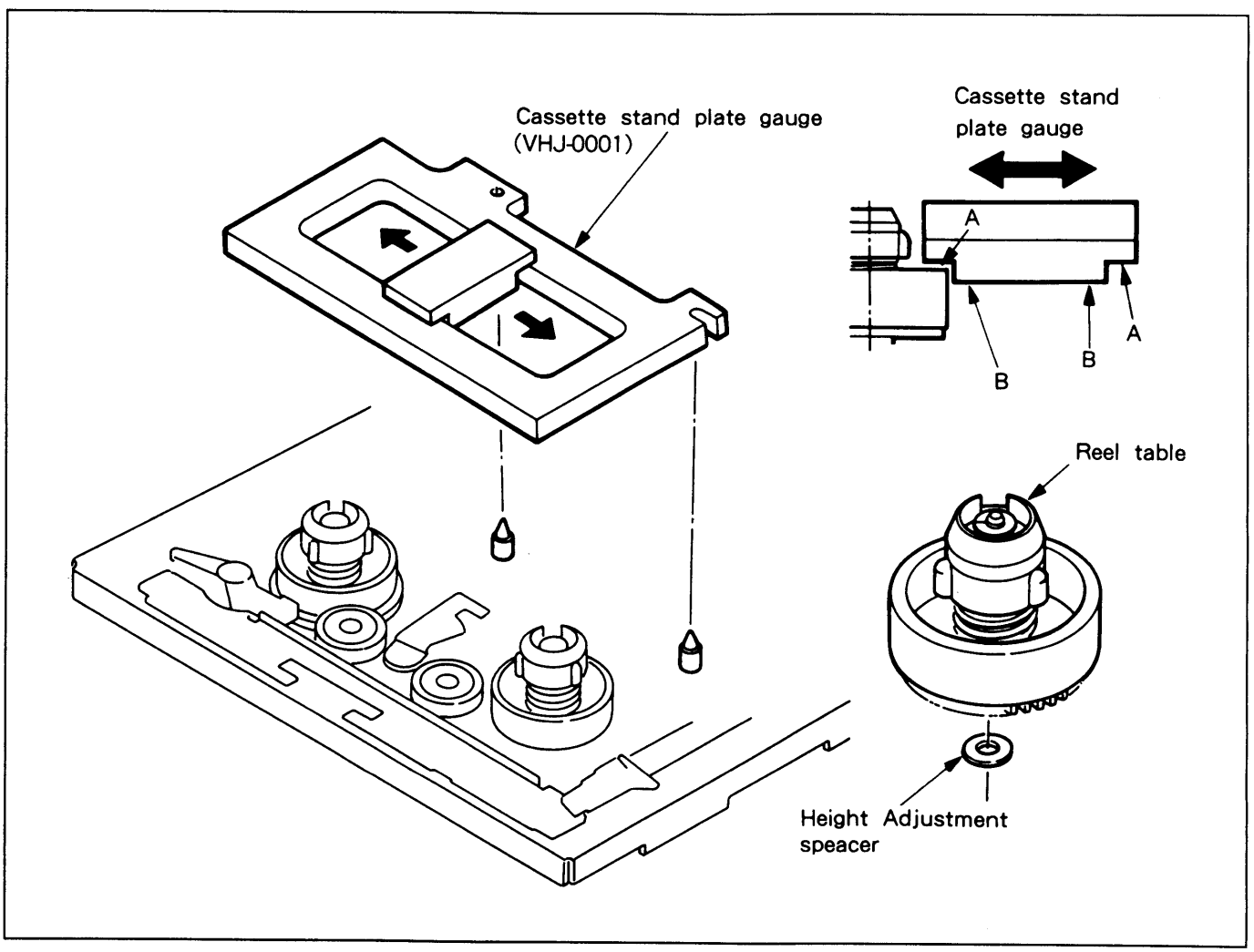


Fig. 5-2-1. Reel Table Height Adjustment

5-2-2. TORQUE CHECK (See Fig. 5-2-2.)

1) Set the unit to operating condition without a cassette inserted as instructed in 5-1.
2) Measure the SUPPLY REEL TABLE torque in the REW mode, and confirm that it is 750 g-cm or more. Perform this measurement keeping the torque gauge in a fixed position with your hand (locked torque).
3) Measure the TAKE-UP REEL TABLE torque in the F.FWD mode, and confirm that it is 600 g-cm or more (locked torque).
4) Measure the TAKE-UP REEL TABLE torque in the playback mode (SP tape speed), and confirm that it is within 100 through 160 g-cm (locked torque).
5) Measure the SUPPLY REEL TABLE torque in the REV (R-SEACH) mode, and confirm that it is within 150 through 240 g-cm (locked torque).
6) After confirming that torque readings are within the specifications for each mode, check the following :
   ⓐ Dirt on the capstan motor and the REEL PULLEY groove.
   ⓑ Deterioration of the REEL DRIVE BELT.
   ⓒ Deterioration of the FRICTION GEAR ASS'Y felt (torque during playback).
   ⓓ Wear and damage of the COMPL CLUTCH MECHANISM and the reel drive system gears.

Note 1: Items ⓑ, ⓒ and ⓓ require replacement if found defective.

Note 2: The measured value of torque during FF and REW represents the value 2 seconds after starting.

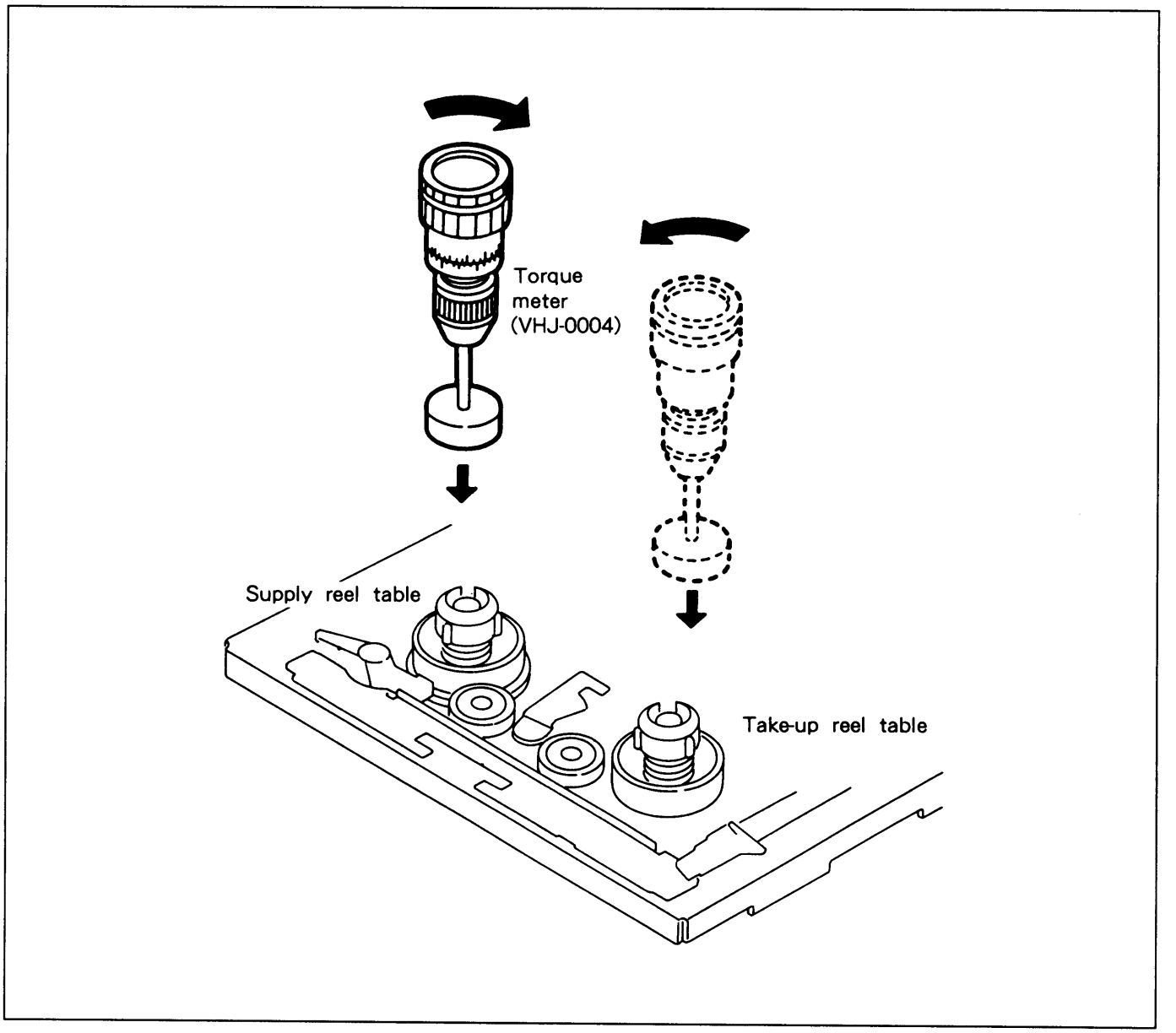


Fig. 5-2-2. Checking REW/FF/PLAY Torque

5-3. TENSION POLE (BACK TENSION GUIDE) POSITION ADJUSTMENT AND BACK TENSION TORQUE CHECK

5-3-1. TENSION POLE (BACK TENSION GUIDE) POSITION ADJUSTMENT (See Fig. 5-3-1.)

1) Remove the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
2) Set the PLAY mode with the mode selector (VHJ-0050).
3) Attach the position adjustment gauge (VHJ-0049) ①.
4) Confirm that the tension pole ② is within the position adjustment gauge frame.
5) In case the tension pole is not within the above-mentioned frame, adjust it by loosening the screw ④ a little and changing the mounting position of the BAND HOLDER ⑤ in the direction of the arrow Ⓐ.
6) Remove the position adjustment gauge ①.
7) Set the EJECT mode with the mode selector.
8) Mount the COMPL CASSETTE MECHANISM as instructed in 2-2-1.
9) Confirm that back tension torque is within 50 ± 10 g-cm, as instructed in 5-3-2 below.

5-3-2. BACK TENSION TORQUE CHECK (See Fig. 5-3-1.)

1) Attach the cassette torquemeter (VHJ-0016) and set the PLAY mode.
2) Confirm that back tension torque is within 50 ± 10 g-cm.
3) In case back tension torque does not meet the above specification, proceed as follows :
ⓐ Clean the portion where the brake band (BAND HOLDER ASS'Y) ⑦ of the SUPPLY REEL ASS'Y ⑥ makes contact.
ⓑ Confirm that the brake band of the BAND HOLDER ASS'Y ⑦ does not make wear and that it is clean. If wear or dirt is found, replace the band holder assembly ⑦ as instructed in 2-7-3.
ⓒ Replace the TENSION LEVER ASS'Y SPRING COIL ⑧.
4) Perform the Tension Pole Position Adjustment after performing ⓐ, ⓑ and ⓒ.

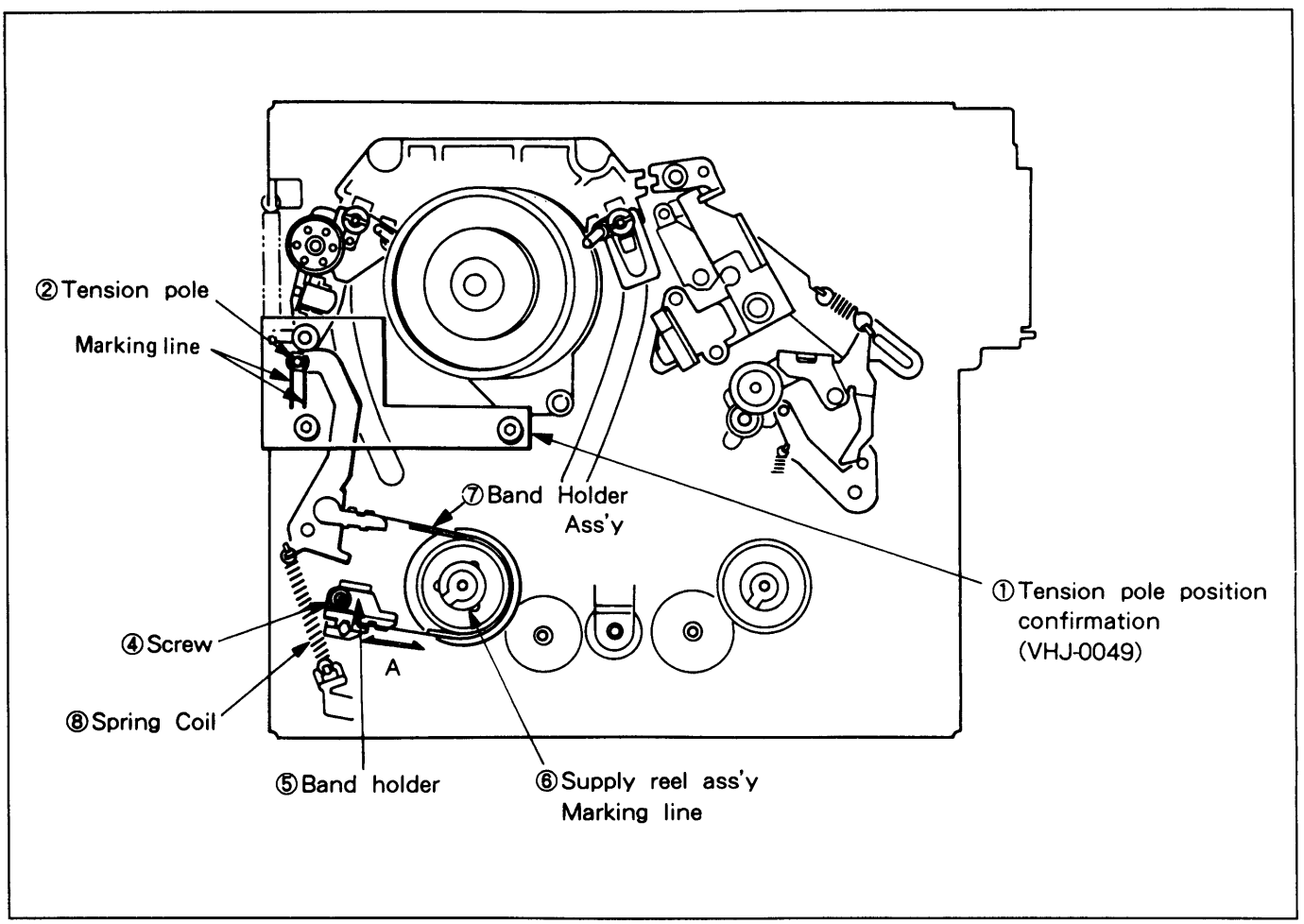


Fig. 5-3-1. Tension Pole Positioning Adjustment

5-4. TAPE PATH ADJUSTMENT

The tape path mechanism is precisely adjusted at the factory. Normally no readjustment is required, but checking and/or adjustment is necessary when parts of the tape path mechanism among those shown in the figure below (See Fig. 5-4-1.) have been removed or replaced after a long period of use.
This operation consists of adjusting the various guides so that the tape drawn out from the supply reel runs smoothly along the DRUM (CYLINDER) lead surface. A way of grasping the tape path condition by electronic means is monitoring the video head output envelope waveform with an oscilloscope. However, the fact that visual observation is essential in order to know whether the tape is running through the various guides in a smooth and natural way should be kept in mind when checking and adjusting.
Also remember that the position of tape guides is not greatly affected by the replacement of the UPPER DRUM (UPPER CYLINDER) or the COMPL DRUM (COMPL CYLINDER), provided that it is correctly performed, and that only the replaced parts should be adjusted after replacing a tape guide or COMPL HEAD BRACKET, since the position of the other tape guides shall not change considerably.

5-4-1. PREPARATIONS FOR ADJUSTMENT

(1) Clean the tape transport surfaces. (See Fig. 5-4-1.)
(2) Connect the oscilloscope. Connect the channel 1 probe to the envelope waveform test point, and the channel 2 probe to the SW25 (RF SW P) test point. During adjustment, apply a trigger to the L side of the SW25 (RF SW P) in order to monitor the waveform output from channel 1 of the video head.

Note: Since oscilloscope connection points differ according to the model, refer to the "TEST POINT FOR TAPE PATH ADJUSTMENT" in the section 6 ELECTRICAL ADJUSTMENT.

(3) Use a dentist's mirror for visual observation of tape path condition.
(4) Use an eccentric driver (VHJ - 0003) for adjustment of the guide rollers.
(5) When adjusting height of the guide rollers or COMPL HEAD BRACKET, turn the special nut or the upper flange clockwise to push the tape downward, and counterclockwise to make the tape rise up.
(6) Do not use damaged cassette tapes for tape path adjustment.

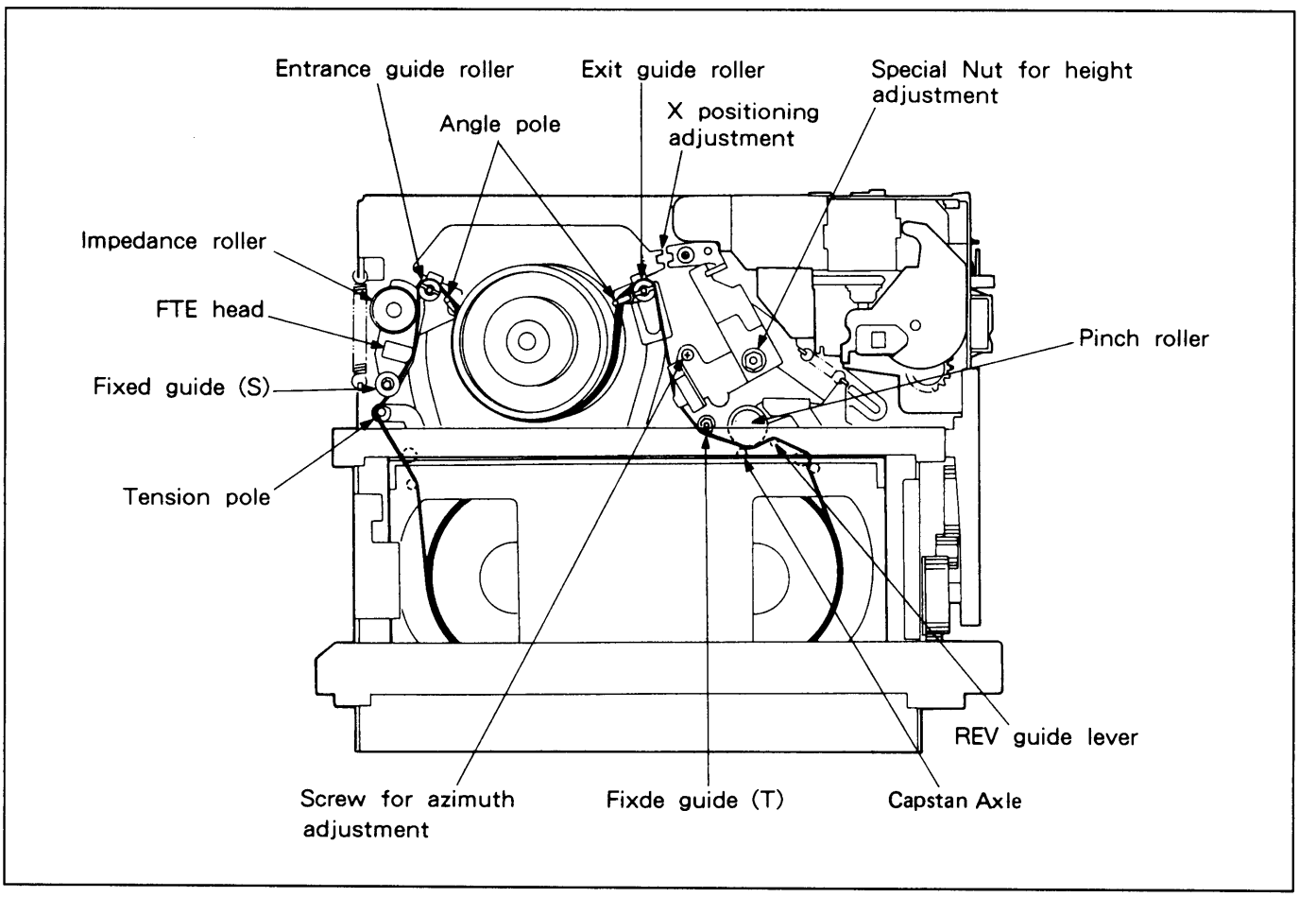


Fig. 5-4-1. Preparation for Adjustment

5-4-2. ADJUSTMENT BY VISUAL OBSERVATION AFTER GUIDE ROLLER OR COMPL HEAD BRACKET REPLACEMENT

Perform this adjustment after removing or replacing any of the above parts. Only for the replaced or removed parts, play back an alignment tape (VHJ-0009) beforehand and adjust height by visual observation.

(1) Guide Rollers (See Fig. 5-4-2.)
The tape should not be curled by the guide roller upper and lower flanges. It should also run smoothly, without moving up and down on the DRUM (CYLINDER) lead surface.

Note: An excessive guide roller pressure may cause tape damage.

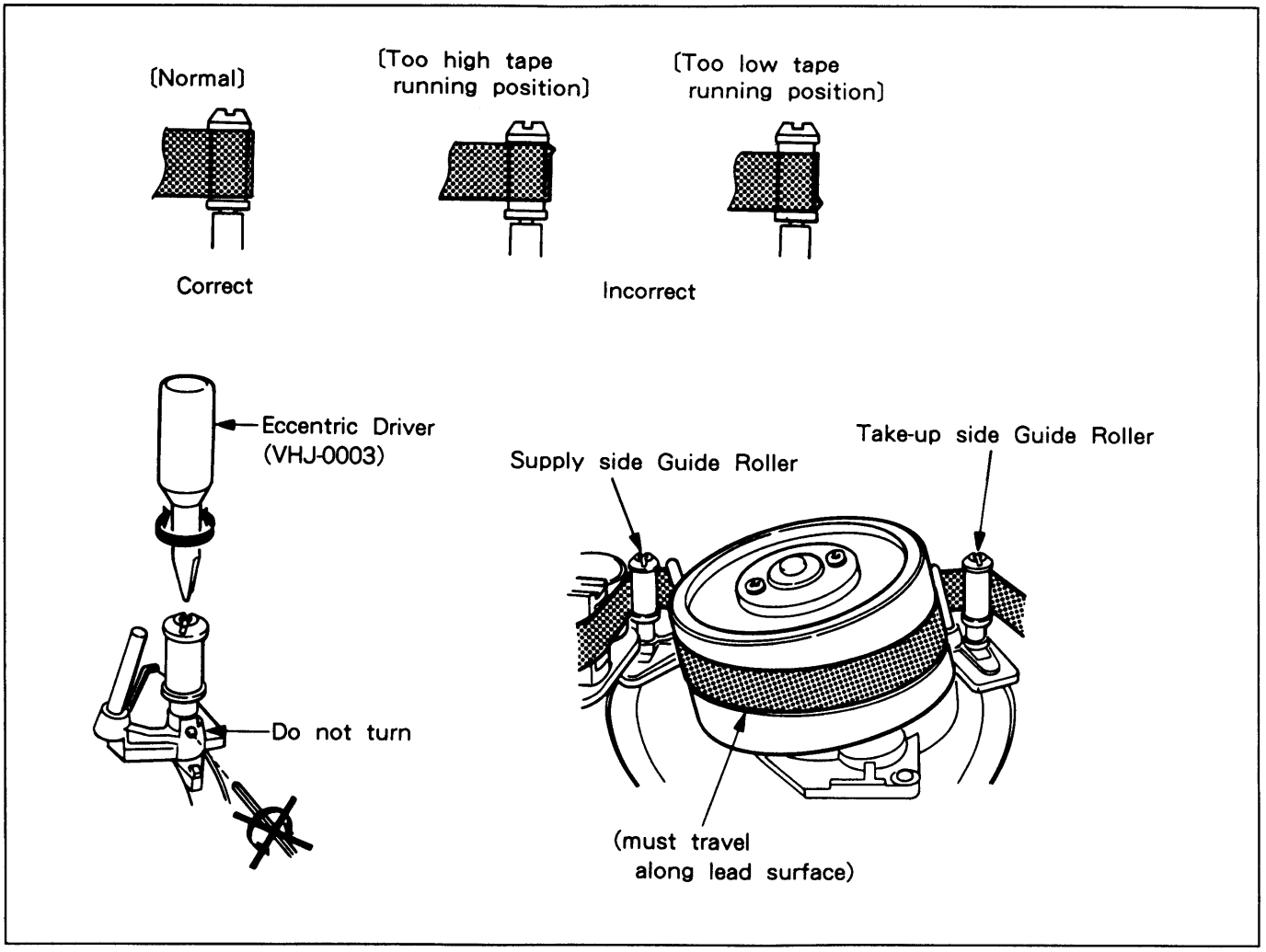


Fig. 5-4-2. (1) Pre-set for Guide Roller

(2) COMPL Head Bracket (ACE Head) (See Fig. 5-4-3.)
Adjust the ACE Head Height Adjustment nut so that the tape edge runs between the audio head upper end and the control head lower end. Gaps A and B should be of about the same width. Since at this point it is only required that the control signal is picked up and the servo circuit works normally, no adjusting screws except the COMPL HEAD BRACKET special nut should be touched.

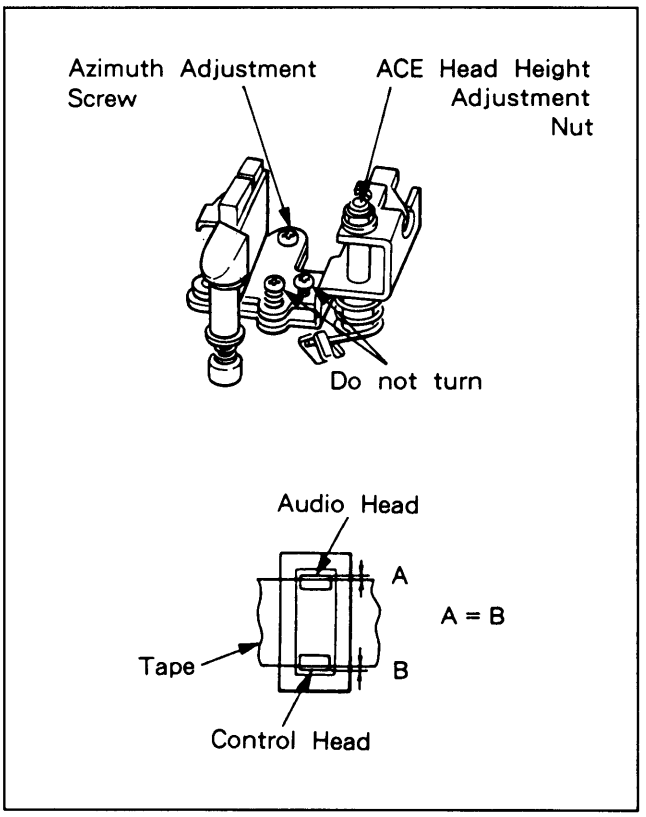


Fig. 5-4-3. (2) Pre-set for Compl Head Bracket

5-4-3. TAPE PATH CHECK OF ENTRANCE SIDE FIXED GUIDE (S) (See Fig. 5-4-4.)

The fixed guide (S) of the entrance side does not require adjustment in this mechanism.
Confirm that the lower edge portion of the tape is running along the lower flange of the entrance side fixed guide (S).
The tape should not be curled by the entrance side fixed guide (S) upper and lower flanges.

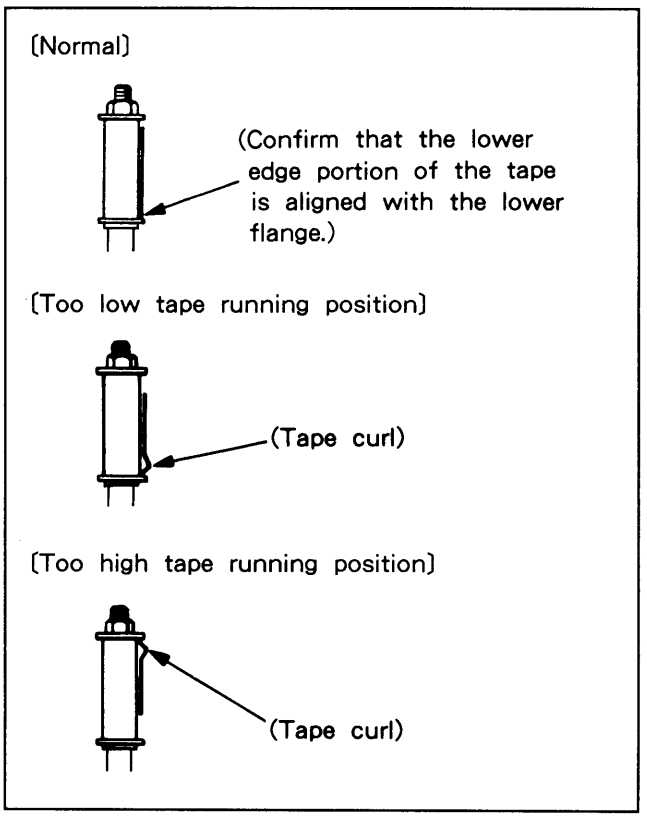

[Normal]
(Confirm that the lower edge portion of the tape is aligned with the lower flange.)
[Too low tape running position]
(Tape curl)
[Too high tape running position]
(Tape curl)

Fig. 5-4-4. Fixed Guide (S)

5-4-4. GUIDE ROLLER ADJUSTMENT (See Fig. 5-4-5.)

1) Play back the alignment tape (VHJ-0009), press the tracking control key and adjust the envelope waveform to the maximum level.
2) Loosen the supply side and take-up side guide rollers by rotating them counterclockwise, then rotate them clockwise alternately until a flat video output waveform is obtained.
3) Confirm that the envelope waveform is not deformed. Check visually that no curling occurs at the guide roller upper and lower flanges.
4) Press the tracking control key and set the envelope waveform level to approx. 50% of the maximum. In this condition, confirm whether the envelope waveform is flat. It will, show valleys or peaks at the first half (supply side) or second half (take-up side) if the tape running position is too high or too low.
   In case there is unevenness in the first half (supply side), adjust the entrance side guide roller. If the second half (take-up side) shows trouble, adjust finely the take-up side guide roller.

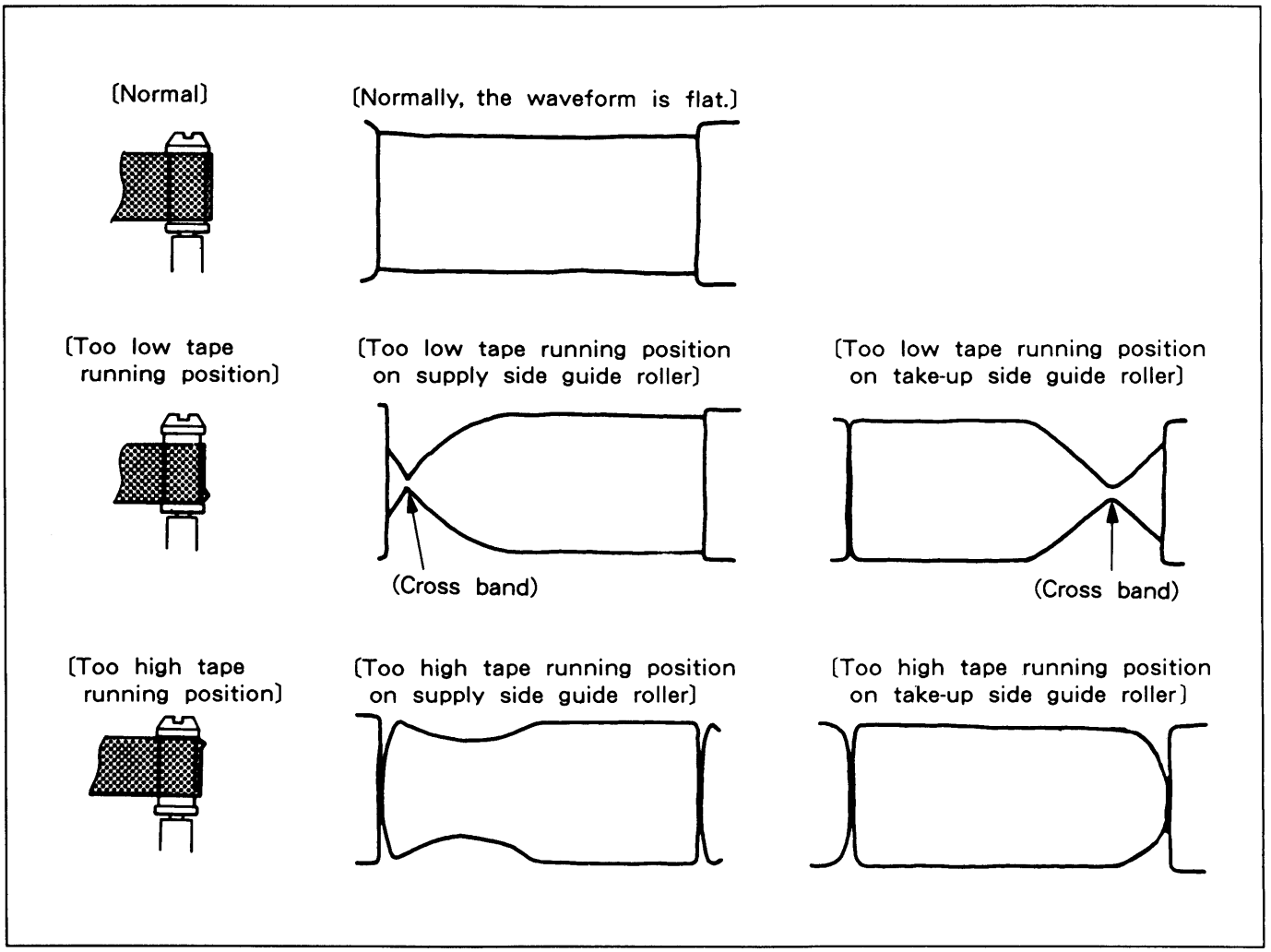

[Normal]
[Normally, the waveform is flat.]
[Too low tape running position]
[Too low tape running position on supply side guide roller]
(Cross band)
[Too low tape running position on take-up side guide roller]
(Cross band)
[Too high tape running position]
[Too high tape running position on supply side guide roller]
[Too high tape running position on take-up side guide roller]

Fig. 5-4-5. Guide Roller Adjustment

5-4-5. TAPE PATH CHECK OF EXIT SIDE FIXED GUID (T) (See Fig. 5-4-6.)

The fixed guide (T) of the exit side does not require adjustment in this mechanism.
Confirm that the lower edge portion of the tape is running close to the lower flange of the exit side fixed guide (T).
The tape should not be curled by the exit side fixed guide (T) upper and lower flanges.

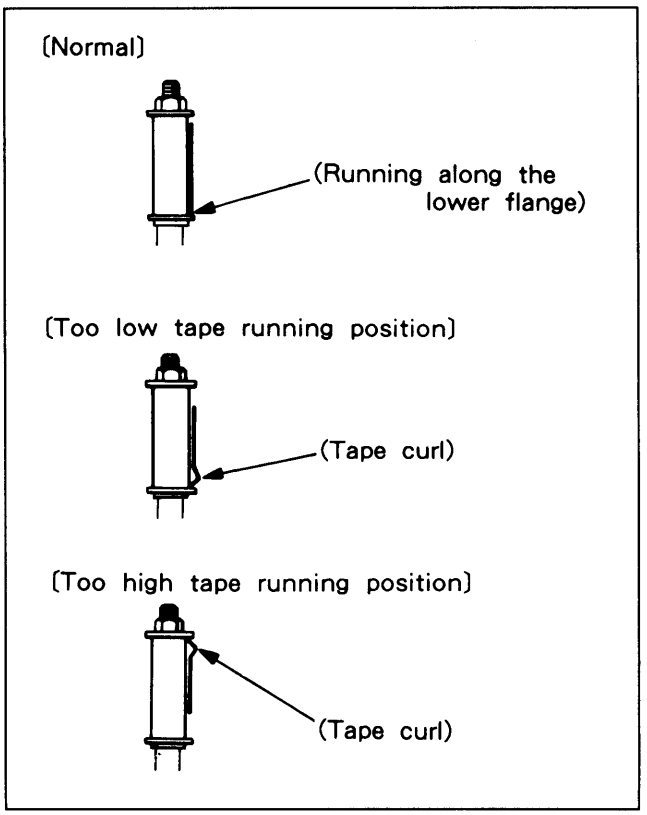


Fig. 5-4-6. Fixed Guide (T)

5-4-6. COMPL HEAD BRACKET(ACE HEAD) ADJUSTMENT

(1) Height Adjustment and Azimuth Adjustment. (See Fig. 5-4-7.)
1) Load the alignment tape (VHJ-0009) and set the PLAY mode.
2) Monitor the audio output waveform with the oscilloscope.
3) Rotate the azimuth adjustment screw until the audio output waveform amplitude is maximum.
4) After loosening the ACE head height adjustment special nut, rotate it slowly clockwise until amplitude of the audio output waveform is maximum, then adjust it finely clockwise to the point just before the said waveform amplitude begins to decrease.
5) Rotate the azimuth adjustment screw until amplitude of the audio output waveform is maximum.
6) Confirm that the audio output waveform amplitude does not fluctuate.

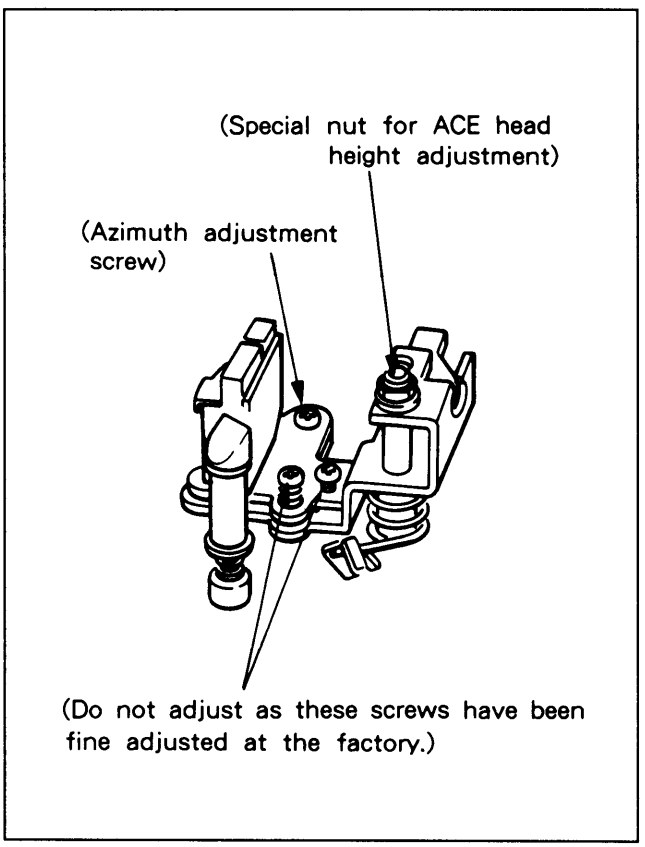

(Special nut for ACE head height adjustment)
(Azimuth adjustment screw)
(Do not adjust as these screws have been fine adjusted at the factory.)

Fig. 5-4-7. Compl Head Bracket

(2) Tracking (X Value) Adjustment (See Fig. 5-4-8.)

1) Load the alignment tape (VHJ-0009) and set the PLAY mode.
2) Set tracking to the center position with the tracking control key (See Note below).
3) Rotate the stopper bracket fixing screw 180° counterclockwise.
4) Monitor the video head output envelope waveform with the oscilloscope.
5) Adjust the stopper bracket position so that amplitude of the envelope waveform becomes maximum at the tracking center and the envelope waveform amplitude changes by the same amount when shifting the tracking center by pressing the plus (+) and minus (−) tracking control keys.
6) Tighten the fixing screw.
7) (Model for LP mode tape speed capability)
   Playback the alignment tape (VHJ-0052) and set the tracking to the center using a tracking control key.
   Then confirm that the playback picture on screen is normal. If not, Make readjustment by referring to items 1) through 7). To readjust, playback VHJ-0009 and finely adjust the position of the stopper bracket within the range in which the amplitude of the envelope waveform can be held to a maximum.
8) Perform servo circuit PB PHASE (Switching position) adjustment.

Note: For models equipped with auto tracking, always set to the manual tracking mode before adjustment. To confirm the tracking center position, press the tracking keys (+, −) and observe the front panel clock display.
It will read "T − : −"at the tracking center, "T− :, T− − :"when keeping the minus (−) key pressed, and "T : −, T : − −"when keeping the plus (+) key pressed. The time indication will be restored 2 to 3 seconds after the tracking keys are released.

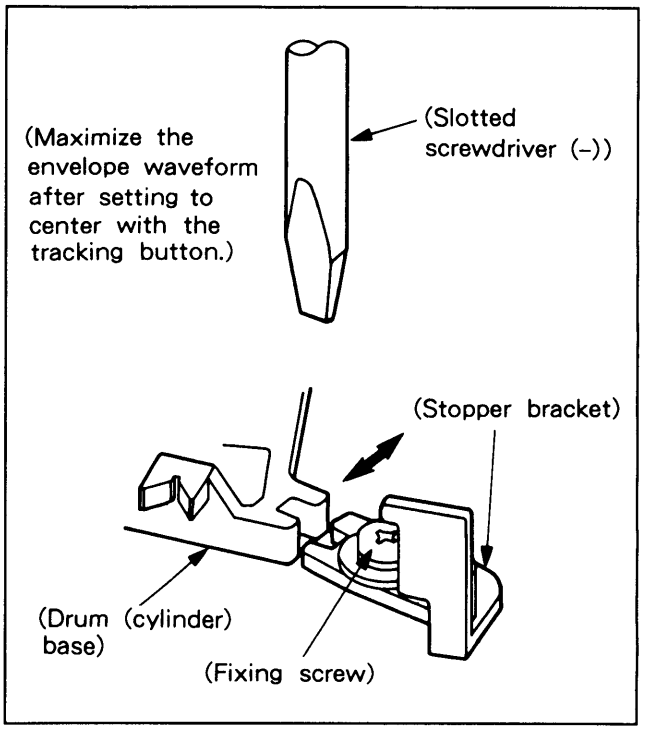

(Maximize the envelope waveform after setting to center with the tracking button.)
(Slotted screwdriver (−))
(Stopper bracket)
(Drum (cylinder) base)
(Fixing screw)

Fig. 5-4-8.

5-4-7. CHECKING AFTER ADJUSTMENT

Tape running may show a slight change depending upon the type of the cassette tape (thick or thin tape), the start, middle, or end of cassette tape winding, etc. After performing the tape path adjustment with use of an alignment tape, be sure to check the following points. Incidentally, the alignment tape to be used should be E-180 or E-240 cassette should be a good one without any damage to it.

(1) Try to play back the alignment tape (VHJ-0009) and confirm that the envelope waveform rise immediately and that there is no fluctuation in the envelope waveform and the audio output waveform.

(2) Load a cassette tape E-180 and start recording operation in the standard mode. 1 kHz should be fed to the audio input terminal when recording. After recording, the following points should be checked.

1. When the recorded portion is played back, the envelope waveform rise immediately, and no fluctuation in the envelope waveform is observed. Also, no speed drop occurs during the first half period or the last half period. Further, check to be sure that no fluctuation occurs in the audio waveform. Also confirm that neither the tape curling or derailing is caused on the upper or lower flange and the on the read side of the drum.
2. Confirm that no tape curling or derailing occurs in the upper or lower flange of each tape guide and the read side of the drum during each mode of operation, namely, FF, REW, F. SEARCH, and R. SEARCH.
3. Confirm that the envelope waveform rise immediately after changing the mode directly to the PLAY from each mode of FF, REW, F. SEARCH, R. SEARCH, or POWER OFF (INITIAL) and that no tape curling or derailing occurs in the upper or lower flange of the each tape guide and on the read side of the drum.

(3) Load a E-240 cassette tape and perform recording operation in the SP mode. 1 kHz should be fed to the audio input terminal when recording. Now, confirm that the envelope waveform rise immediately upon starting the playback of the recorded portion, and that neither fluctuation in the envelope waveform nor a speed drop occurs during the first half period or the last half period. Also confirm that no tape curling or derailing is caused in the upper or lower flange of each tape guide and on the drum lead surface.

(4) Perform recording for 60 seconds in the SP mode at the start of E-240 cassette winding. Play back the recorded portion and repeat the F.SEARCH ↔ R.SEARCH ten times, following which confirm that no damage is done to the tape edge. If any damage is found on the tape edge, a proper step must be taken as below depending upon the symptom obserbed.

1. When a sawtooth shaped damage is caused on underside of the tape edge by the REV guide
   1) Check to see if damage is done to the tape by the REV guide.
   2) Loosen the tilt adjustment screw of the ACE head bracket by turning it 135° counter-clockwise.
   3) Make readjustment of the ACE head bracket (azimuth, height and adjustment of X value) by referring to item 5-4-6.
   4) Confirm that no fluctuation in the audio level is caused by loosening the tilt adjustment screw in steps 1) and 2) above. Move the screw a little back if any fluctuation is found (but never move it back to the original position). After adjusting the tilt adjustment screw is readjusted, perform step 4) once again.
   5) Confirm again that the E-240 cassette tape does not sustain any damage.
   6) Perform the recording and playback on the E-180 and E-240 cassette tape and confirm that no fluctuation occurs in the envelope waveform and the audio waveform.

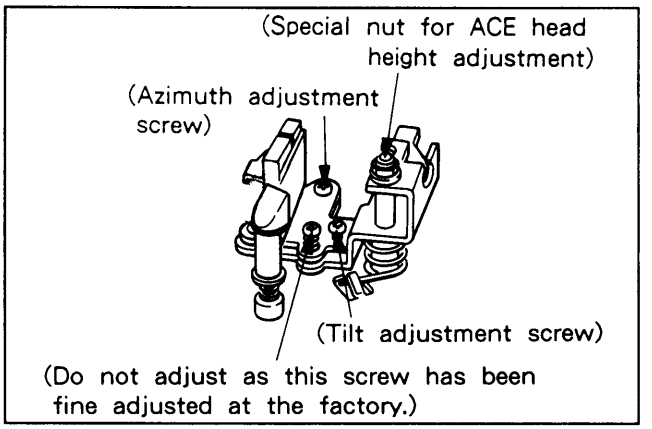

(Special nut for ACE head height adjustment)
(Azimuth adjustment screw)
(Tilt adjustment screw)
(Do not adjust as this screw has been fine adjusted at the factory.)

Fig. 5-4-9. Compl Head Bracket

2. If damage in the form of a sawtooth or a streak is found on the tape edge
   1) Check if a large amount of magnetic particles is adhered to the exit-side guide roller. If magnetic particles cannot be removed in spite of repeated cleaning, the guide roller must be replaced.
   2) Confirm if the tape is held too tightly by the exit-side guide roller, or if the last half of the envelope waveform is flat. If the type is found held too tightly, readjustment should be made by referring to 5-4-4.
   3) Recheck if the damage is still caused on the E-240 tape.
      If similar damage is still found on the tape, the exit-side guide roller should be loosened about 20° counterclockwise.
   4) Check once again that no fluctuation is caused in the envelope waveform or the audio waveform by loosening the exit-side guide roller. To do this, record and play back the E-240 cassette tape.

(5) Perform recording for 60 seconds in the SP mode at the near end of the E-240 cassette tape. Play back the recorded portion and repeat the F. SEARCH ↔ R. SEARCH ten times, following which a check should be made to see if damage is still done to the tape edge.
If a damage in the form of a sawtooth or a streak is still occurred on the tape edge by the upper lounge of entrance side guide roller, proceed with the step given below.
1. Check if a large amount of magnetic particles is adhered to the entrance-side guide roller. If the magnetic particles cannot be removed in spite of repeated cleaning, the guide roller must be replaced with new one.
2. Confirm if the tape is held too tightly by the entrance-side guide roller, or if the first half of the envelope waveform is flat. If the tape is found held too tightly, readjustment should be made by referring to 5-4-4.
3. Recheck if the damage is still caused on the E-240 tape.
   If the damage is still found on the tape, the entrance-side guide roller should be loosened about 20° counterclockwise.
4. Check once again that no fluctuation is caused in the envelope waveform or the audio waveform by loosening the entrance-side guide roller. To do this, record and play back the E-240 cassette tape.

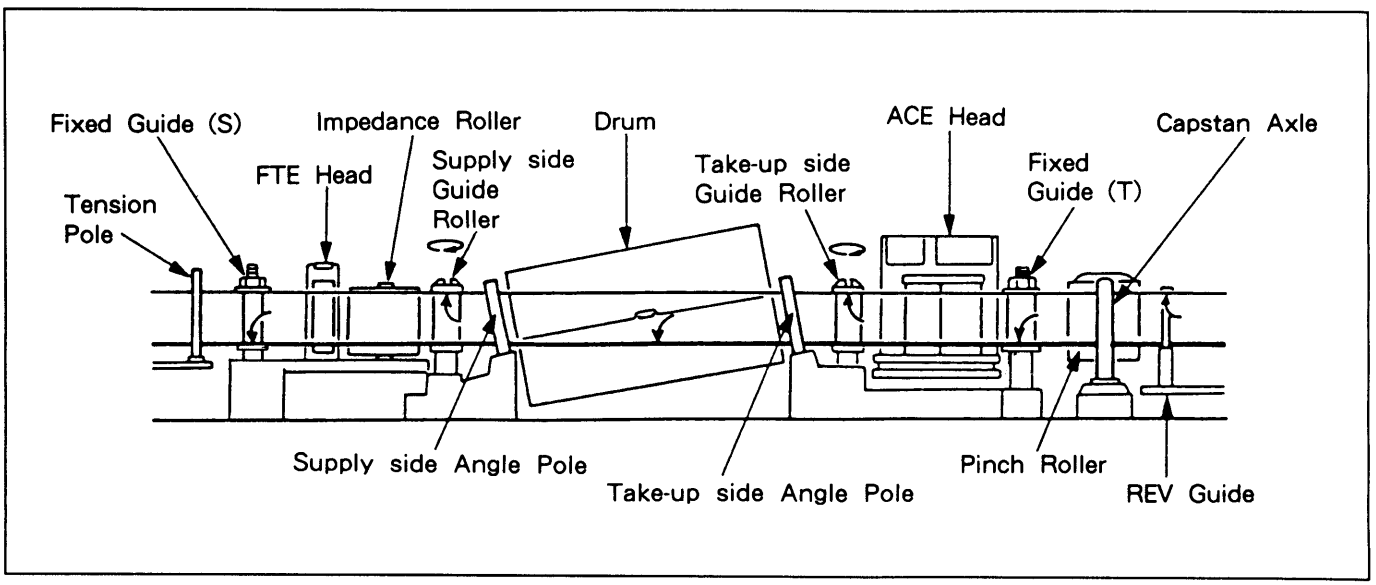


Fig. 5-4-10

6. Electrical Adjustment

6-1. PREPARATION

6-1-1. EQUIPMENT

- Colour TV monitor
- PAL Colour-bar generator (with RF and LINE OUTPUT)
- Audio signal generator
- Oscilloscope (dual trace; frequency response: 10MHz or more; probe: 10:1)
- Frequency counter (countable to 10MHz or higher)
- Digital voltmeter
- AC voltmeter
- In/output probes
- Alignment cassette (VHJ-0008) PAL Colour bar 1KHz
- Alignment cassette (VHJ-0009) Monoscope 6KHz
- Alignment cassette (VHJ-0051) Check for D.O.C.
- Alignment cassette (VHJ-0023) PAL Monoscope 6KHz, PAL Colour-bar 1KHz, SECAM Colour-bar 1KHz, PAL RF Sweep MESECAM Colour-bar 1KHz, NTSC Colour-bar 1KHz.
- Relay jig (VHJ-0066) 7-wire cable for Pre-amp unit
- Relay jig (VHJ-0084) for CP-1 and CP-2 board
- Relay jig (VHJ-0085) for Video pre-amp unit

6-1-2. CONNECTING THE RELAY JIG

When repairing CP-1 and CP-2 board (see Figs. 6-1-2 and 6-1-3)

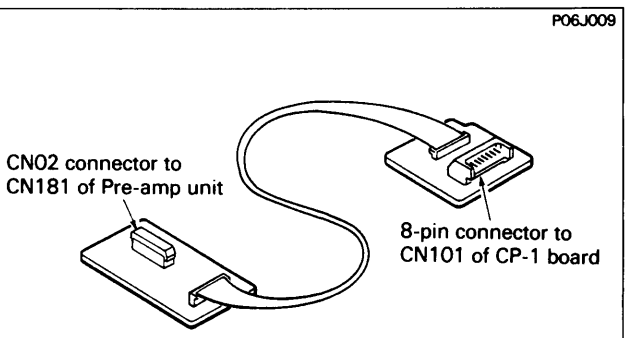
NOTE: The connection of any Relay jigs can be done without removing the front panel of the main unit.

1. Remove the seven screws of the CP-1 board to take out with CP-2 board connected.
2. Insert the CP-1 board with CP-2 board connected in the slit of chassis as shown in Fig. 6-1-3 (right).
3. Connect CN01 and CN02 of Relay jig (VHJ-0084) into connectors of the PW-1 board and the Pre-amp unit, in the direction of arrow as shown in Fig. 6-1-3 (left). Fix the relay jig with screw if necessary.
4. Connect 12-pin, 8-pin and 4-pin connectors of the Relay jig to connectors CN541, CN101 and CN201 on the CP-1 board, respectively.
5. Connect connector (1) from ACE head to CN06 of the Relay jig (VHJ-0084).
6. After finishing the repairs and adjustments, put the Flat cables back to its former position.

When repairing the Pre-amp unit (see Figs. 6-1-1 and 6-1-4)

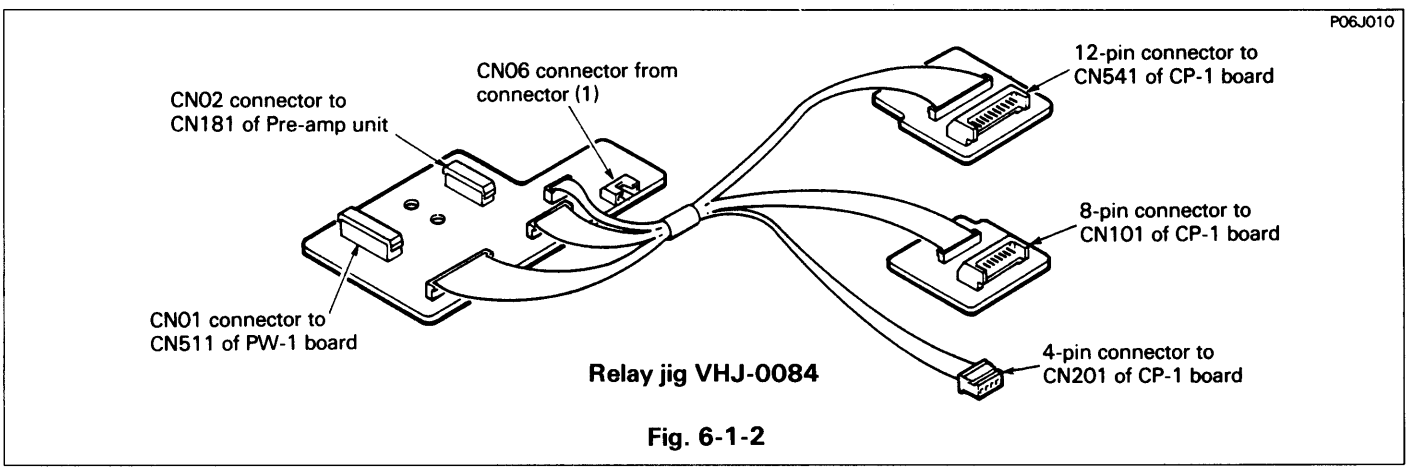
1. Remove the Pre-amp unit from the chassis, connect Relay jig (VHJ-0066) between the Pre-amp unit and drum assembly.
2. Connect Relay jig (VHJ-0084) excepting 8-pin connector between the PW-1 board and CP-1 board as shown in Fig. 6-1-4. Fix the relay jig with screw if necessary.
3. Connect Relay jig (VHJ-0085) between the top of Pre-amp unit and CN101 on the CP-1 board.

NOTE: When repairing or adjusting the Pre-amp unit, temporary fasten or securely touch one end of the shield case to the metal chassis.



Relay jig VHJ-0085

Fig. 6-1-1



Relay jig VHJ-0084

Fig. 6-1-2

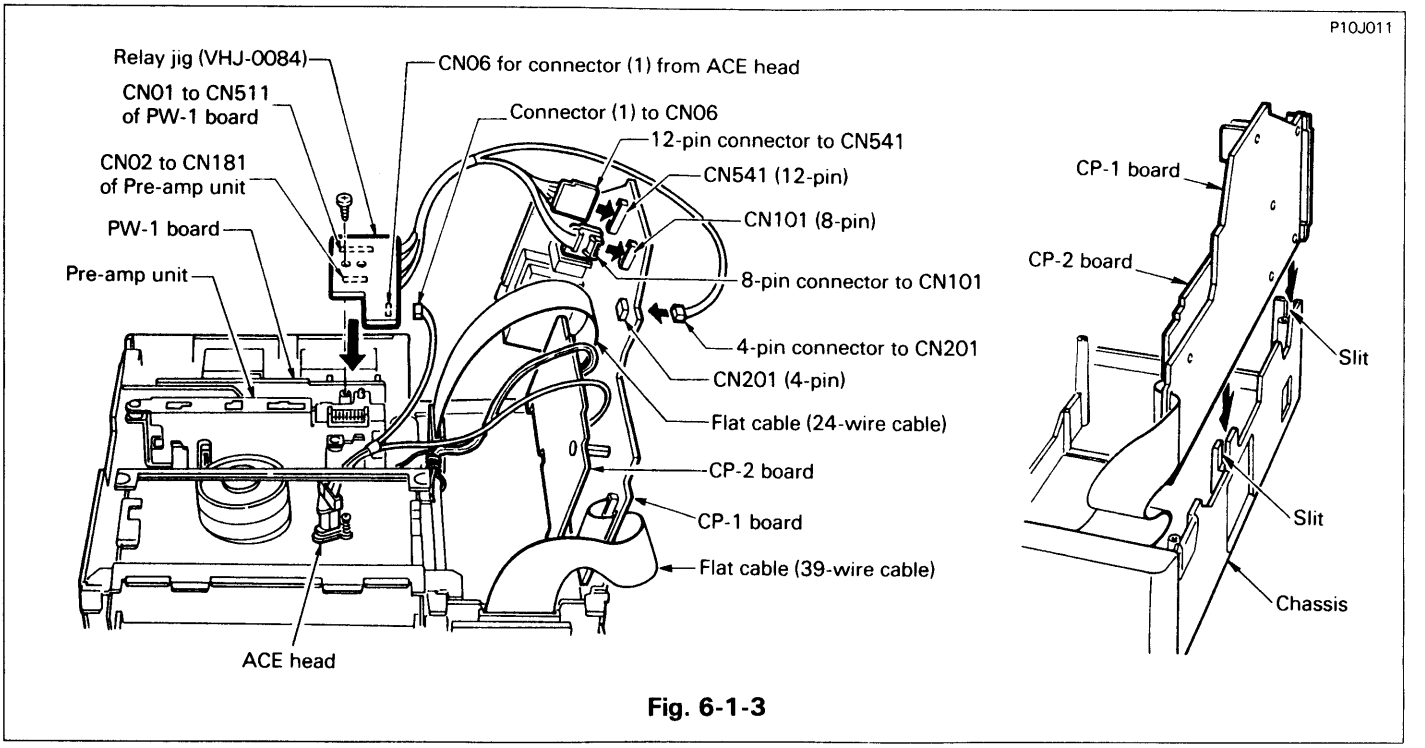


Fig. 6-1-3

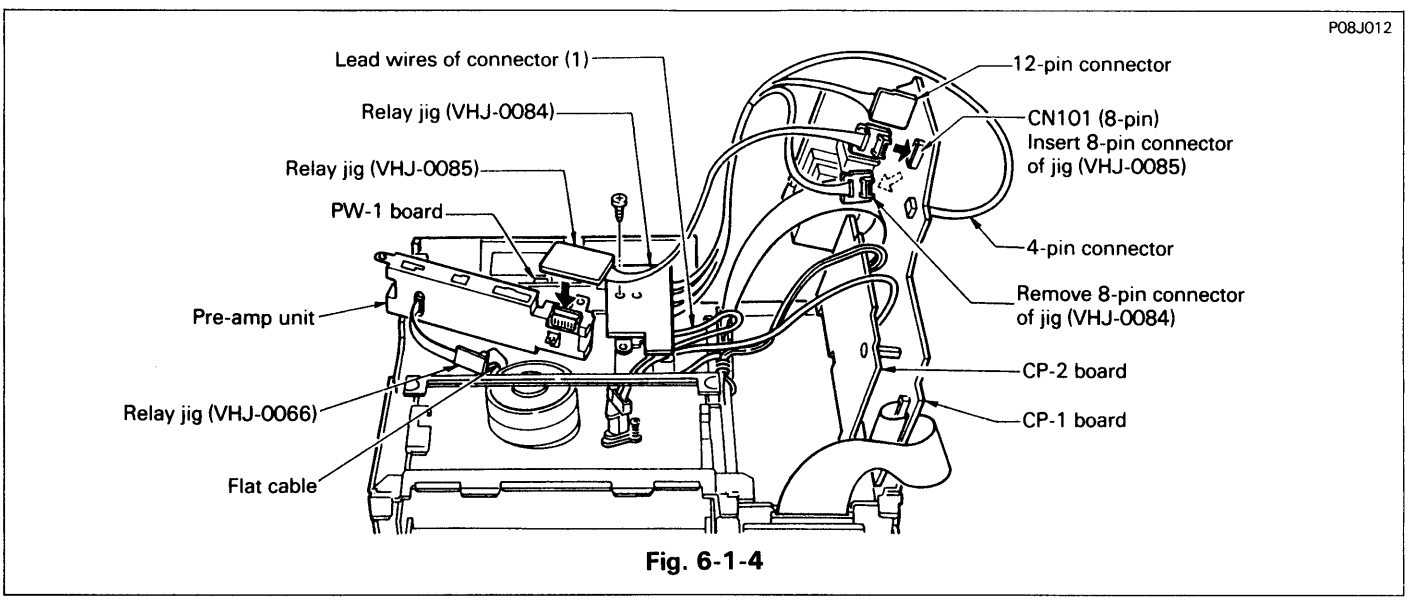


Fig. 6-1-4

6-1-3. SET-UP

Because the RF input signal is used for circuit adjustments, connect the colour-bar generator to the ANT IN terminal of the VCR. The RF input signal is processed by the tuner and IF circuit. It is improtant that the video output signal of the IF circuit satisfies the items shown in Fig. 6-1-5.Connect the oscilloscope to the VIDEO OUTPUT terminal of the video circuit and terminate with a 75Ω load, and then check the video output signal.

- The amplitude of the sync signal should be approximately 0.3 Vp-p.
- The amplitude of the video signal should be approximately 0.7 Vp-p.
- While observing the oscilloscope or TV screen, make fine-tuning adjustments so that the colour burst amplitude is approximately 0.3 Vp-p.
- Check to be sure that there is no spike noise in the sync part of the horizontal sync signal.

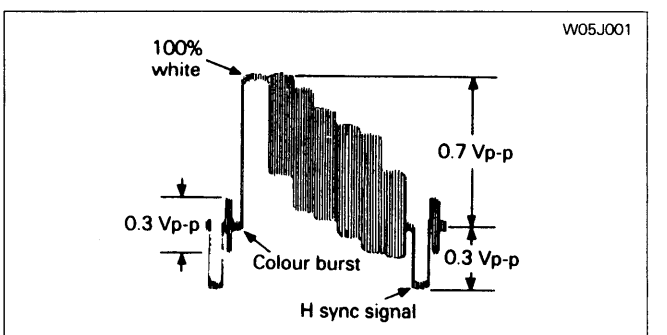
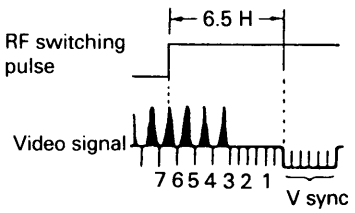
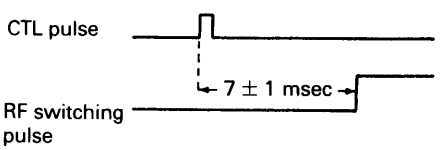


Fig. 6-1-5

6-2. SERVO CIRCUIT ADJUSTMENT ..... CP-1 board and Video pre-amp unit

NOTE (1) : These adjustments should be carried out upon completion of the transport adjustments.
(2) : If the tape transport adjustments are carried out after these adjustments, follow the procedures again in SWITCHING POSITIONS.

No.	Item	Input	Mode	Point	Location	Remark
1	SWITCHING POSITION	Alignment cassette (VHJ-0009 or VHJ-0023)	PLAY (SP)	VIDEO OUTPUT TP101 RF SW pulse TP183 (Video pre-amp unit)	VR351	W25S001  1. Press the tracking control (+) (–) buttons simultaneously to the center position (on the display "T —:— "). 2. Adjust VR351 so that the phase of the leading edge of the vertical sync signal is delayed 6.5 ± 0.5 H from the rise of the RF switching pulse waveform.
2	SLOW TRACKING for SP mode	Colour bar from Colour bar generator	REC (SP) ↓ PLAY (SP) ↓ SLOW (SP)	TP183 RF SW Pulse J3042 CTL Pulse	VR353	W20S009  1. Playback the recorded part, and VCR in the SLOW (SP) mode by remote control unit. 2. Press the tracking control (+) (–) buttons simultaneously to the center position (on the display "T —:— "). 3. Adjust VR353 so that there is a trigger of the peak level of the positive pulse reading edge of the CTL pulse and the time from this point to the leading edge of the RF switching pulse is 7 ± 1 msec. 4. Confirm that the noise at the "+" and "–" terminals for tracking adjustment is same at the upper and lower edges of the screen. If not, readjust VR353.

P06S033

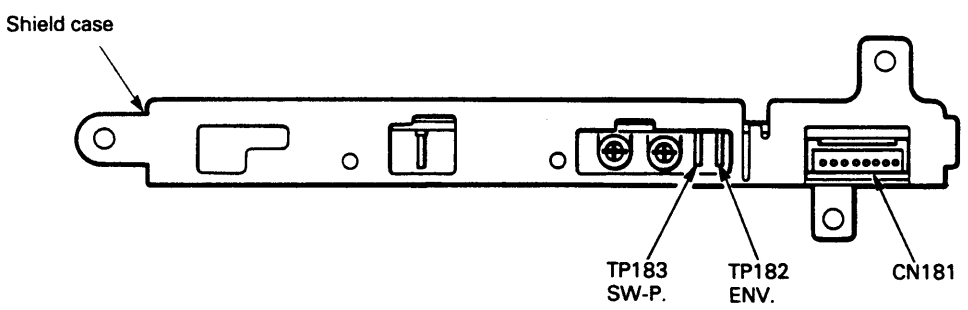
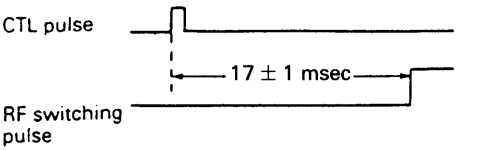


Fig. 6-2-1 Video pre-amp unit

No.	Item	Input	Mode	Point	Location	Remark
3	SLOW TRACKING for LP mode	Colour bar from Colour bar generator	REC (LP) ↓ PLAY (LP) ↓ SLOW (LP)	TP183 RF SW Pulse J3042 CTL Pulse	VR354	W20S010  1. Playback the recorded part, and VCR in the SLOW (LP) mode by remote control unit. 2. Press the tracking control (+) (–) buttons simultaneously to the center position (on the display "T —:— "). 3. Adjust VR354 so that there is a trigger of the peak level of the positive pulse reading edge of the CTL pulse and the time from this point to the leading edge of the RF switching pulse is 17 ± 1 msec. 4. Confirm that the noise at the "+" and "–" terminals for tracking adjustment is same at the upper and lower edges of the screen. If not, readjust VR354.

P13S034

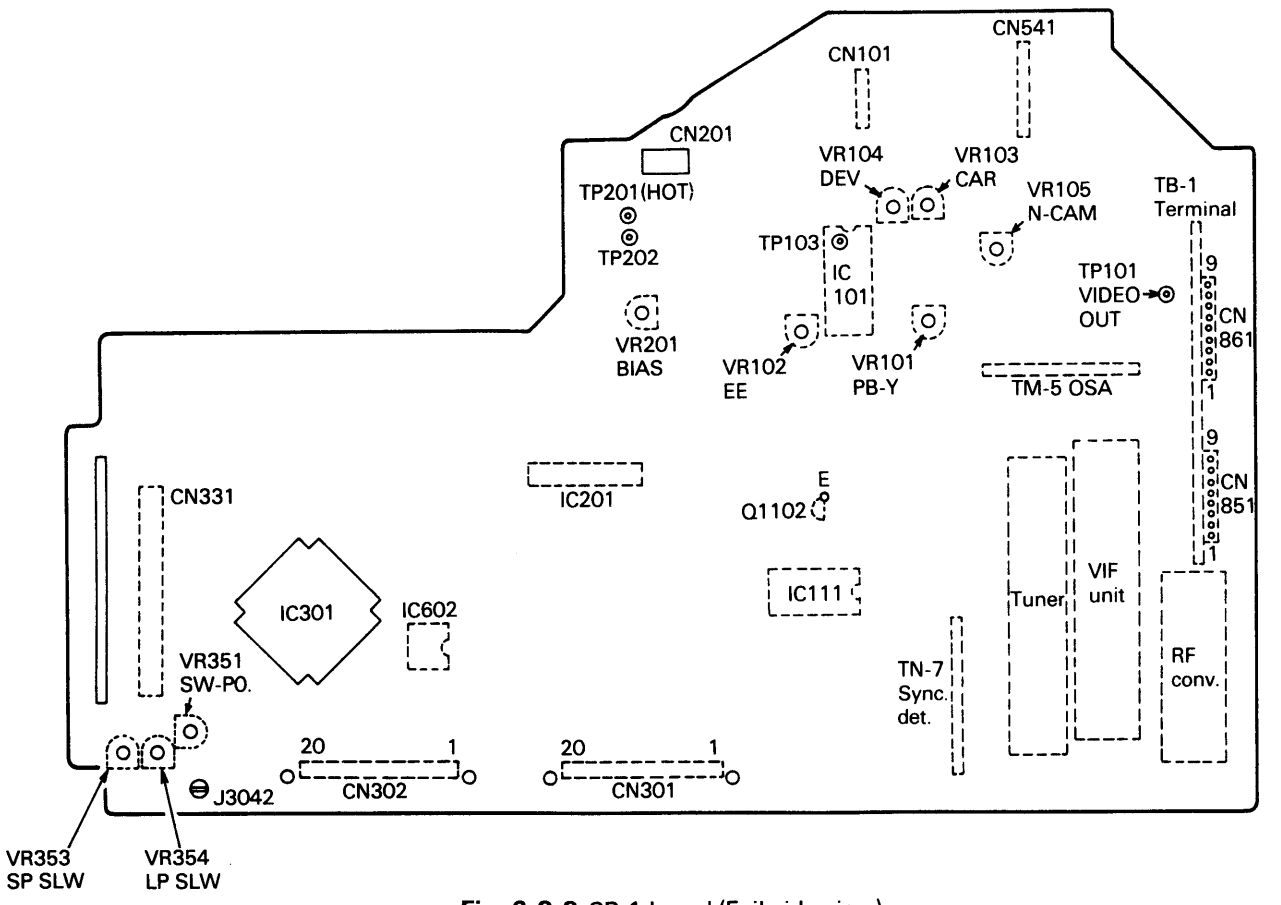
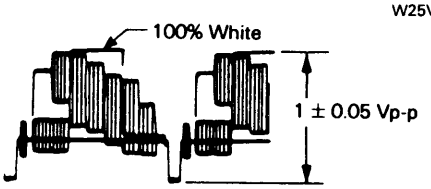
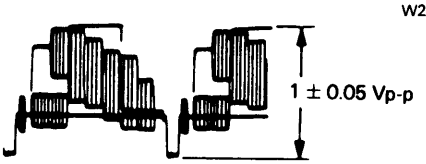
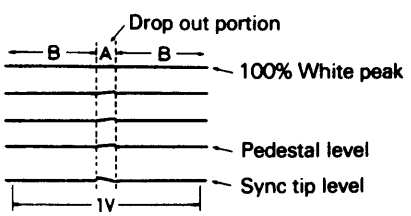
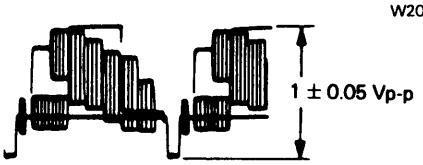
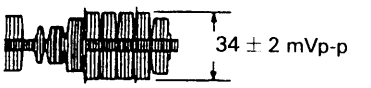
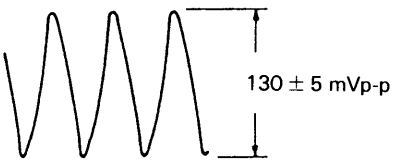


Fig. 6-2-2 CP-1 board (Foil side view)

6-3. VIDEO CIRCUIT ADJUSTMENT ... CP-1 board and Video pre-amp unit

NOTE (1) : Use the Relay jig mentiond in the 6-1. PREPARATION to provide easy adjustment of the Pre-amp unit.
(2) : When adjustment No. 1, No. 2 and No. 5 below, terminate VIDEO OUTPUT TP101 at 75 ohms.
(3) : 'No-signal REC mode' is not to supply any signal to VIDEO INPUT terminal.

No.	Item	Input	Mode	Point	Location	Remark
1	E-E LEVEL	Colour bar (100% white level) from Colour bar generator	E-E	VIDEO OUTPUT TP101 (CP-1 board)	VR102	W25V001  1. Adjust VR102 so that the level is 1.00 ± 0.05 Vp-p.
2	PB-Y LEVEL	Alignment cassette (VHJ-0008 or VHJ-0023)	PLAY	VIDEO OUTPUT TP101 (CP-1 board)	VR101	W20V003  1. Adjust VR101 so that the level is 1.00 ± 0.05 Vp-p.
3	N-CAN LEVEL	Alignment cassette (VHJ-0051)	PLAY	VIDEO OUTPUT TP101 (CP-1 board)	VR105	W30V012  1. Set the horizontal scale (TIME/DIV) of the oscilloscope to 1 msec./div.. 2. Adjust VR105 so that the drop out portion "A" of white peak (100%) and other portion "B" are same level.
4	CARRIER SET	No-signal	REC	TP103 (CP-1 board)	VR103	1. Set the channel selector buttons to the AV position and put the VCR in the no-signal REC mode. 2. Adjust VR103 so that the frequency is 3.80 ± 0.05 MHz.
5	DEVIATION	Colour bar (100% white level) from Colour bar generator	REC (Adjustment) ↓ PLAY (Check)	VIDEO OUTPUT TP101 (CP-1 board)	VR104	W20W003  1. Insert the blank tape to the VCR and record colour bar signal. 2. Playback the recorded part, and check that the level is 1.00 ± 0.05 Vp-p. 3. Repeat adjust VR104 before the record, and the playback it, if not satisfactory.

No.	Item	Input	Mode	Point	Location	Remark
6	C REC CURRENT	Colour bar from Colour bar generator	REC	TP181 (HOT) shield case (GND) (Video pre-amp unit)	VR181	W15V006  1. Rotate VR182 so that the luminance level is minimize. 2. Adjust VR181 so that the level is 34 ± 2 mVp-p.
7	Y REC CURRENT	No-signal	REC	TP181 (HOT) shield case (GND) (Video pre-amp unit)	VR182	W20V007  1. Set the channel selector buttons to AV position and put the VCR in the no-signal REC mode. 2. Adjust VR182 so that the level is 130 ± 5 mVp-p. 3. Follows are the applicable models and their corresponding mark.

P60V012

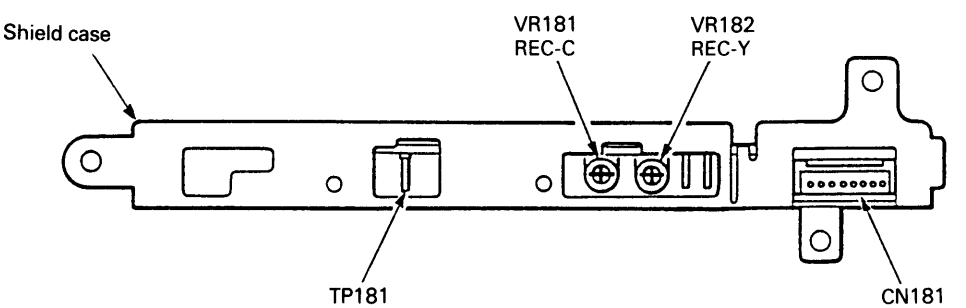


Fig. 6-3-1 Video pre-amp unit

6-4. VIDEOTEXT DECODER CIRCUIT ADJUSTMENT ... TM-6 and CP-1 board

No.	Item	Input	Mode	Point	Location	Remark
1	DECODER VXO	NONE	E-E	Emiter of Q1102 (CP-1 board) Fig. 6-2-2	CT761	1. Set the vartical scale (VOLTAGE/DIV.) of the oscilloscope to 10 mV/DIV.. 2. Connect the frequency counter to Emitter of Q1102 and ground through a pre-amp of the above oscilloscope. 3. Press the "MENU" button on the remote control unit. 4. Adjust CT761 so that the frequency is 4433619 ± 20 Hz.

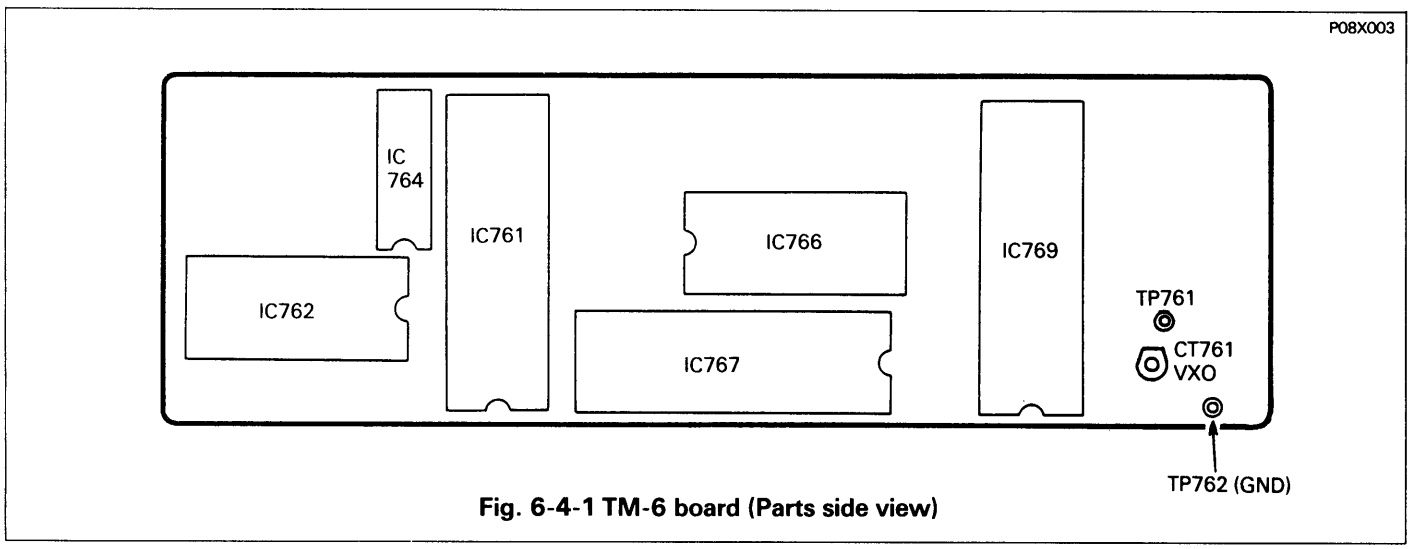


Fig. 6-4-1 TM-6 board (Parts side view)

6-5. AUDIO CIRCUIT ADJUSTMENT ... CP-1 board

No.	Item	Input	Mode	Point	Location	Remark
1	BIAS LEVEL	No-signal	REC	TP201 (HOT) TP202	VR201	1. Set the channel selector buttons to the AV position and put the VCR in the no-signal REC mode. 2. Adjust VR201 so that the level is 23 mVrms.

6-6. TUNER IF CIRCUIT ADJUSTMENT ... VIF unit

No.	Item	Input	Mode	Point	Location	Remark
1	RF AGC	TV broadcast	E-E	TV screen	VR611	1. Turn VR611 in the direction which causes snow to appear, then in the opposite direction until the snow just disappears.

P06U002

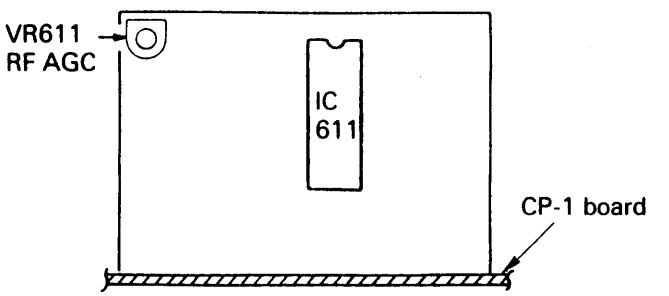


Fig. 6-6-1 VIF unit (Parts side view)

6-7. LOCATION FOR TAPE PATH ADJUSTMENT

NOTE: Test point TP182 and TP183 for tape path adjustment is shown in figure below.
For adjustment, refer to "5-4. TAPE PATH ADJUSTMENT".

P06L012

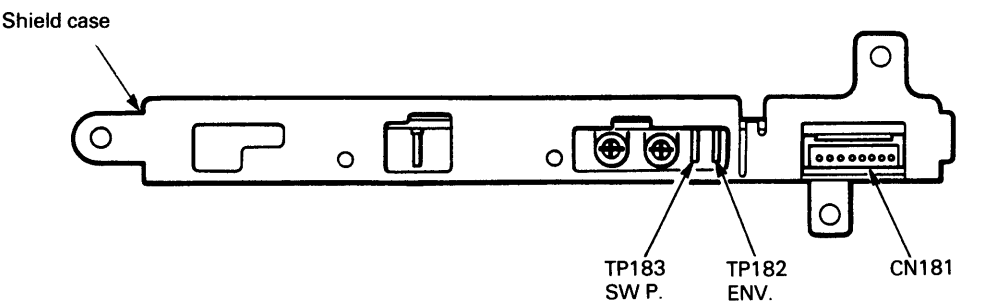


Fig. 6-7-1 Pre-amp unit

7. Electrical Parts List

NOTE;

*Materials of Capacitors and Resistors are abbreviated as follows;

Resistors

MT-FILE	Metal Film Resistor
MT-GLAZE	Metal Glaze Resistor
OXIDE-MT	Oxide Metal Film Resistor

Capacitors

MT-POLYEST	Metallized Polyester Capacitor
MT-COMPO	Metallized Composite Capacitor
TA-SOLID	Tantalum Solid Capacitor
AL-SOLID	Aluminum Solid Capacitor
NP-ELECT	Non-Polarized Electrolytic Capacitor
OS-SOLID	Aluminum Solid Capacitors with Organic Semiconductive Electrolytic Capacitor
DL-ELECT	Double Layered Electrolytic Capacitor

*Tolerance of Capacitor(10pF over) and Resistor are noted with follow symboles.

F ····· ±1% G ····· ±2% J ····· ±5% K ····· ±10%

M ····· ±20% N ····· ±30% Z ····· +80% ~ −20%

*N.S.P. : Not available as service parts.

LOCATION	PARTS NO.	DESCRIPTION		
COMPL PCB,CP-A				
COMPL.NO.	613 129 4707			
VIDEO CIRCUIT(VD-A)				
C1001	403 025 7304	CERAMIC	4.7P K	50V
C1002	403 073 2702	CERAMIC	390P J	50V
C1003	403 026 2209	CERAMIC	47P J	50V
C1004	403 158 5604	NP-ELECT	0.47U M	50V
C1005	403 150 1703	CERAMIC	91P J	50V
C1006	403 071 1509	CERAMIC	180P J	50V
C1007	403 075 4001	CERAMIC	820P J	50V
C1008	403 161 6902	NP-ELECT	2.2U M	50V
C1009	403 001 1906	CERAMIC	0.01U M	16V
C1010	403 191 8808	ELECT	2.2U M	50V
C1011	403 193 8608	ELECT	0.47U M	50V
C1012	403 075 3103	CERAMIC	82P J	50V
C1013	403 068 8801	CERAMIC	100P J	50V
C1014	403 063 2200	POLYESTER	0.068U K	50V
C1015	403 001 1906	CERAMIC	0.01U M	16V
C1016	403 001 1906	CERAMIC	0.01U M	16V
C1017	403 001 1906	CERAMIC	0.01U M	16V
C1018	403 163 7907	ELECT	47U M	6.3V
C1019	403 191 8808	ELECT	2.2U M	50V
C1020	403 139 1502	ELECT	10U M	16V
C1021	403 139 2905	ELECT	2.2U M	50V
C1023	403 001 1906	CERAMIC	0.01U M	16V
C1024	403 162 1807	ELECT	22U M	10V
C1025	403 193 8608	ELECT	0.47U M	50V
C1031	403 001 1906	CERAMIC	0.01U M	16V
C1032	403 135 5009	ELECT	47U M	10V
C1033	403 109 6308	ELECT	1U M	50V
C1034	403 026 2209	CERAMIC	47P J	50V
C1035	403 025 7304	CERAMIC	4.7P K	50V
C1036	403 026 2209	CERAMIC	47P J	50V
C1037	403 121 3002	ELECT	4.7U M	25V
C1038	403 001 1906	CERAMIC	0.01U M	16V
C1039	403 001 1906	CERAMIC	0.01U M	16V
C1040	403 073 6205	CERAMIC	470P J	50V
C1061	403 074 8703	CERAMIC	680P J	50V
C1101	403 214 0703	CERAMIC	0.022U J	16V
C1102	403 001 1906	CERAMIC	0.01U M	16V
C1103	403 109 6308	ELECT	1U M	50V
C1104	403 001 1906	CERAMIC	0.01U M	16V
C1105	403 109 6308	ELECT	1U M	50V
C1106	403 109 6308	ELECT	1U M	50V
C1107	403 214 0703	CERAMIC	0.022U J	16V
C1108	403 214 1106	CERAMIC	0.047U J	16V
C1109	403 001 1906	CERAMIC	0.01U M	16V
C1112	403 109 6308	ELECT	1U M	50V
C1113	403 214 1106	CERAMIC	0.047U J	16V
C1114	403 025 8608	CERAMIC	43P J	50V
C1115	403 150 1703	CERAMIC	91P J	50V
C1116	403 001 1906	CERAMIC	0.01U M	16V
C1117	403 163 7907	ELECT	47U M	6.3V
C1118	403 068 8801	CERAMIC	100P J	50V
C1119	403 001 1906	CERAMIC	0.01U M	16V
C1121	403 001 1906	CERAMIC	0.01U M	16V
C1124	403 121 0100	CERAMIC	0.082U J	16V
OR	403 214 1403	CERAMIC	0.082U J	16V
C1125	403 070 3702	CERAMIC	120P J	50V
C1126	403 001 1906	CERAMIC	0.01U M	16V
C1128	403 070 3702	CERAMIC	120P J	50V
C1281	403 073 2702	CERAMIC	390P J	50V
C1301	403 120 9005	CERAMIC	0.022U J	16V
OR	403 214 0703	CERAMIC	0.022U J	16V
C1351	403 014 2600	CERAMIC	18P J	50V
C1352	403 014 2600	CERAMIC	18P J	50V
C1401	403 139 2202	ELECT	4.7U M	25V
C1605	403 135 4101	ELECT	470U M	6.3V
C1608	403 121 2104	ELECT	22U M	10V
C1609	403 093 9606	OS-SOLID	1U M	16V
C1631	403 022 7703	CERAMIC	33P J	50V
C1632	403 022 7703	CERAMIC	33P J	50V
CN101	613 120 7875	PLUG,8P		
D1001	407 007 9904	DIODE GMA01-BT		
OR	407 012 4406	DIODE 1SS133-T-77		
D1002	407 007 9904	DIODE GMA01-BT		
OR	407 012 4406	DIODE 1SS133-T-77		
D1031	407 070 8408	ZENER DIODE GZS9.1Y-TB		
OR	407 053 8906	ZENER DIODE MTZ9.1C-T-77		
D1301	407 007 9904	DIODE GMA01-BT		
OR	407 012 4406	DIODE 1SS133-T-77		
D1302	407 007 9904	DIODE GMA01-BT		
OR	407 012 4406	DIODE 1SS133-T-77		
D1303	407 007 9904	DIODE GMA01-BT		
OR	407 012 4406	DIODE 1SS133-T-77		
D1304	407 007 9904	DIODE GMA01-BT		
OR	407 012 4406	DIODE 1SS133-T-77		
D1603	407 007 9904	DIODE GMA01-BT		
OR	407 012 4406	DIODE 1SS133-T-77		
D1604	407 007 9904	DIODE GMA01-BT		
OR	407 012 4406	DIODE 1SS133-T-77		
D1651	407 007 9904	DIODE GMA01-BT		
OR	407 012 4406	DIODE 1SS133-T-77		
DL131	613 116 7001	DELAY,2H		
OR	613 117 4870	DELAY,2H		

LOCATION	PARTS NO.	DESCRIPTION
IC101	409 178 3309	IC LA7340
IC102	409 171 9209	IC LC8992
IC111	409 208 7208	IC LA7332
L1001	613 014 0951	COIL,INDUCTOR 68UHK
OR	613 014 4478	HF CHOKE 68UH K
L1031	613 014 0968	COIL,INDUCTOR 82UHK
OR	613 014 4485	HF CHOKE 82UH K
L1032	613 014 0739	COIL,INDUCTOR 1.0UHM
OR	613 014 4256	HF CHOKE 1.0UH K
L1061	613 014 0975	COIL,INDUCTOR 100UHK
OR	613 014 4492	HF CHOKE 100UH K
L1101	613 014 0883	COIL,INDUCTOR 18UHK
OR	613 014 4409	HF CHOKE 18UH K
L1102	613 014 0791	COIL,INDUCTOR 3.3UHK
OR	613 014 4317	HF CHOKE 3.3UH K
L1103	613 014 0876	COIL,INDUCTOR 15UHK
OR	613 014 4393	HF CHOKE 15UH K
L1104	613 014 1019	COIL,INDUCTOR 220UHK
OR	613 014 4539	HF CHOKE 220UH K
L1105	613 014 0937	COIL,INDUCTOR 47UHK
OR	613 014 4454	HF CHOKE 47UH K
L1631	613 014 0944	COIL,INDUCTOR 56UHK
OR	613 014 4461	HF CHOKE 56UH K
Q1001	405 093 0508	TR KSA1175-Y
OR	405 004 4007	TR 2SA608-E-SPA-AC
OR	405 004 4601	TR 2SA608-F-SPA-AC
OR	405 006 1707	TR 2SA933S-TP-Q
OR	405 006 1806	TR 2SA933S-T93-R
Q1002	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1003	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1004	405 000 6104	TR DTC144ES-DCTP
OR	405 018 2501	TR 2SC3399-AC
Q1031	405 093 0508	TR KSA1175-Y
OR	405 004 4007	TR 2SA608-E-SPA-AC
OR	405 004 4601	TR 2SA608-F-SPA-AC
OR	405 006 1707	TR 2SA933S-TP-Q
OR	405 006 1806	TR 2SA933S-T93-R
Q1032	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1051	405 093 0508	TR KSA1175-Y
OR	405 004 4007	TR 2SA608-E-SPA-AC
OR	405 004 4601	TR 2SA608-F-SPA-AC
OR	405 006 1707	TR 2SA933S-TP-Q
OR	405 006 1806	TR 2SA933S-T93-R
Q1101	405 093 0508	TR KSA1175-Y
OR	405 004 4007	TR 2SA608-E-SPA-AC
OR	405 004 4601	TR 2SA608-F-SPA-AC
OR	405 006 1707	TR 2SA933S-TP-Q
OR	405 006 1806	TR 2SA933S-T93-R
Q1102	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1103	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q

LOCATION	PARTS NO.	DESCRIPTION
Q1103	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1104	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1105	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1106	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1151	405 093 0508	TR KSA1175-Y
OR	405 004 4007	TR 2SA608-E-SPA-AC
OR	405 004 4601	TR 2SA608-F-SPA-AC
OR	405 006 1707	TR 2SA933S-TP-Q
OR	405 006 1806	TR 2SA933S-T93-R
Q1301	405 093 0508	TR KSA1175-Y
OR	405 004 4007	TR 2SA608-E-SPA-AC
OR	405 004 4601	TR 2SA608-F-SPA-AC
OR	405 006 1707	TR 2SA933S-TP-Q
OR	405 006 1806	TR 2SA933S-T93-R
Q1302	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1351	405 000 2205	TR DTA144ES-DCTP
OR	405 003 7603	TR 2SA1345-AC
Q1401	405 057 6201	TR 2SC4038-Q-TL2
OR	405 057 6409	TR 2SC4038-R-TL2
Q1402	405 086 4506	TR KSA643C-Y
OR	405 006 6504	TR 2SA984-E-AA
OR	405 006 6702	TR 2SA984-F-AA
Q1403	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
Q1404	405 009 7003	TR 2SB985-T-AE
Q1601	405 004 4601	TR 2SA608-F-SPA-AC
OR	405 006 1806	TR 2SA933S-T93-R
Q1602	405 093 0508	TR KSA1175-Y
OR	405 004 4007	TR 2SA608-E-SPA-AC
OR	405 004 4601	TR 2SA608-F-SPA-AC
OR	405 006 1707	TR 2SA933S-TP-Q
OR	405 006 1806	TR 2SA933S-T93-R
Q1631	405 057 6201	TR 2SC4038-Q-TL2
OR	405 057 6409	TR 2SC4038-R-TL2
R1001	401 022 3008	CARBON 6.8K JA 1/4W
R1002	401 017 1705	CARBON 2.7K JA 1/4W
R1003	401 022 1806	CARBON 680 JA 1/4W
R1004	401 012 9201	CARBON 1M JA 1/4W
R1005	401 012 5609	CARBON 1K JA 1/4W
R1006	401 017 1705	CARBON 2.7K JA 1/4W
R1007	401 012 5609	CARBON 1K JA 1/4W
R1008	401 022 1806	CARBON 680 JA 1/4W
R1009	401 012 5609	CARBON 1K JA 1/4W
R1010	401 017 8506	CARBON 300 JA 1/4W
R1011	401 015 2605	CARBON 1.8K JA 1/4W
R1012	401 015 4609	CARBON 180K JA 1/4W
R1013	401 012 9201	CARBON 1M JA 1/4W

LOCATION	PARTS NO.	DESCRIPTION
R1014	401 016 3700	CARBON 2.2K JA 1/4W
R1015	401 023 2703	CARBON 8.2K JA 1/4W
R1016	401 013 5202	CARBON 1.2K JA 1/4W
R1017	401 018 4804	CARBON 33K JA 1/4W
R1018	401 012 5609	CARBON 1K JA 1/4W
R1019	401 016 2505	CARBON 220 JA 1/4W
R1020	401 020 3802	CARBON 470K JA 1/4W
R1021	401 014 6000	CARBON 150K JA 1/4W
R1022	401 022 1806	CARBON 680 JA 1/4W
R1023	401 016 4707	CARBON 22K JA 1/4W
R1024	401 020 2805	CARBON 47K JA 1/4W
R1025	401 016 3700	CARBON 2.2K JA 1/4W
R1026	401 012 5609	CARBON 1K JA 1/4W
R1031	401 012 5609	CARBON 1K JA 1/4W
R1032	401 020 0702	CARBON 470 JA 1/4W
R1033	401 018 9700	CARBON 39 JA 1/4W
R1034	401 018 9700	CARBON 39 JA 1/4W
R1035	401 018 9700	CARBON 39 JA 1/4W
R1051	401 012 4404	CARBON 100 JA 1/4W
R1052	401 012 5609	CARBON 1K JA 1/4W
R1101	401 020 2805	CARBON 47K JA 1/4W
R1102	401 016 4707	CARBON 22K JA 1/4W
R1103	401 012 5609	CARBON 1K JA 1/4W
R1104	401 013 5202	CARBON 1.2K JA 1/4W
R1105	401 018 2701	CARBON 330 JA 1/4W
R1106	401 021 1807	CARBON 560 JA 1/4W
R1107	401 012 5609	CARBON 1K JA 1/4W
R1108	401 012 5609	CARBON 1K JA 1/4W
R1109	401 012 6903	CARBON 10K JA 1/4W
R1110	401 023 2703	CARBON 8.2K JA 1/4W
R1111	401 012 5609	CARBON 1K JA 1/4W
R1112	401 015 2605	CARBON 1.8K JA 1/4W
R1113	401 012 8006	CARBON 100K JA 1/4W
R1114	401 019 0904	CARBON 390 JA 1/4W
R1115	401 012 5609	CARBON 1K JA 1/4W
R1116	401 019 1802	CARBON 3.9K JA 1/4W
R1117	401 014 4006	CARBON 1.5K JA 1/4W
R1118	401 022 7105	CARBON 750 JA 1/4W
R1119	401 012 5609	CARBON 1K JA 1/4W
R1120	401 012 4404	CARBON 100 JA 1/4W
R1121	401 012 5609	CARBON 1K JA 1/4W
R1122	401 020 0702	CARBON 470 JA 1/4W
R1123	401 014 4006	CARBON 1.5K JA 1/4W
R1124	401 015 8805	CARBON 200 JA 1/4W
R1125	401 023 1607	CARBON 820 JA 1/4W
R1126	401 012 5609	CARBON 1K JA 1/4W
R1127	401 016 2505	CARBON 220 JA 1/4W
R1128	401 018 2701	CARBON 330 JA 1/4W
R1152	401 012 5609	CARBON 1K JA 1/4W
R1301	401 012 6903	CARBON 10K JA 1/4W
R1302	401 012 5609	CARBON 1K JA 1/4W
R1303	401 012 5609	CARBON 1K JA 1/4W
R1304	401 020 2805	CARBON 47K JA 1/4W
R1305	401 016 4707	CARBON 22K JA 1/4W
R1306	401 015 4609	CARBON 180K JA 1/4W
R1351	401 016 3700	CARBON 2.2K JA 1/4W
R1352	401 016 3700	CARBON 2.2K JA 1/4W
R1401	401 016 4707	CARBON 22K JA 1/4W
R1402	401 016 4707	CARBON 22K JA 1/4W
R1403	401 020 1907	CARBON 4.7K JA 1/4W
R1404	401 020 1907	CARBON 4.7K JA 1/4W
R1405	401 020 2805	CARBON 47K JA 1/4W
R1406	401 020 2805	CARBON 47K JA 1/4W
R1407	401 015 2605	CARBON 1.8K JA 1/4W
R1408	401 016 2505	CARBON 220 JA 1/4W
R1607	401 021 1807	CARBON 560 JA 1/4W
R1608	401 022 6702	CARBON 75 JA 1/4W
R1609	401 013 9408	CARBON 1.3K JA 1/4W
R1610	401 021 1807	CARBON 560 JA 1/4W

LOCATION	PARTS NO.	DESCRIPTION
R1631	401 021 2903	CARBON 5.6K JA 1/4W
R1632	401 012 5609	CARBON 1K JA 1/4W
R1633	401 023 1607	CARBON 820 JA 1/4W
R1634	401 015 2605	CARBON 1.8K JA 1/4W
R1641	401 015 2605	CARBON 1.8K JA 1/4W
TH101	407 142 4208	THERMISTOR TD5-C310DB
VR101	613 079 2525	VR,SEMI 1KB
OR	613 120 8537	VR,SEMI 1KB
VR102	613 079 2532	VR,SEMI 10KB
OR	613 120 8544	VR,SEMI 10KB
VR103	613 120 8506	VR,SEMI 4.7KB
OR	613 120 8650	VR,SEMI 4.7KB
VR104	613 079 2532	VR,SEMI 10KB
OR	613 120 8544	VR,SEMI 10KB
VR105	613 079 2525	VR,SEMI 1KB
OR	613 120 8537	VR,SEMI 1KB
X1101	613 080 9407	OSC,CRYSTAL 4.43MHZ
OR	613 093 8008	OSC,CRYSTAL 4.433619MHZ
OR	613 120 8865	OSC,CRYSTAL 4.433619MHZ
XF101	613 004 5539	LC PACK 4MHZ LPF
XF111	613 004 5485	LC PACK

AUDIO CIRCUIT(AD-A)

C2001	403 049 1401	ELECT 1U M 50V
C2002	403 075 4506	CERAMIC 820P K 50V
C2004	403 167 6500	ELECT 33U M 6.3V
C2005	403 150 0201	CERAMIC 0.018U K 16V
C2006	403 193 8608	ELECT 0.47U M 50V
C2008	403 001 7601	CERAMIC 4700P M 16V
C2009	403 163 7907	ELECT 47U M 6.3V
C2010	403 107 9905	ELECT 10U M 16V
C2013	403 003 2406	CERAMIC 0.022U J 25V
C2016	403 109 6308	ELECT 1U M 50V
C2017	403 149 0700	ELECT 33U M 16V
C2018	403 191 8600	ELECT 4.7U M 25V
C2019	403 163 8409	ELECT 47U M 16V
C2020	403 071 6207	CERAMIC 220P K 50V
C2021	403 081 7409	POLYPRO 0.033U J 100V
C2022	403 129 0409	CERAMIC 0.01U K 16V
C2024	403 129 0409	CERAMIC 0.01U K 16V
C2025	403 003 3700	CERAMIC 0.022U Z 25V
C2051	403 069 1207	CERAMIC 1000P K 50V
C2071	403 075 4506	CERAMIC 820P K 50V
C2072	403 191 8709	ELECT 1U M 50V
C2073	403 003 6503	CERAMIC 0.033U J 25V
OR	403 104 7706	CERAMIC 0.033U J 25V
IC201	409 128 4905	IC LA7295
L2002	613 014 3532	HF CHOKE 10MH J
L2003	613 014 3259	HF CHOKE 560UH K
Q2001	405 024 9709	TR 2SD734-E-AA
OR	405 024 9907	TR 2SD734-F-AA
R2001	401 012 4404	CARBON 100 JA 1/4W
R2002	401 017 1705	CARBON 2.7K JA 1/4W
R2003	401 023 0600	CARBON 82 JA 1/4W
R2004	401 019 3905	CARBON 390K JA 1/4W
R2005	401 021 8905	CARBON 6.2K JA 1/4W
R2006	401 017 1705	CARBON 2.7K JA 1/4W
R2009	401 018 6501	CARBON 3.3M JA 1/4W
R2010	401 012 6903	CARBON 10K JA 1/4W
R2011	401 016 0006	CARBON 20K JA 1/4W

LOCATION	PARTS NO.	DESCRIPTION
R2012	401 022 7600	CARBON 7.5K JA 1/4W
R2013	401 012 5609	CARBON 1K JA 1/4W
R2014	401 015 2605	CARBON 1.8K JA 1/4W
R2016	401 012 6903	CARBON 10K JA 1/4W
R2017	401 012 6903	CARBON 10K JA 1/4W
R2018	401 015 3701	CARBON 18K JA 1/4W
R2019	401 015 3701	CARBON 18K JA 1/4W
R2021	401 012 3308	CARBON 10 JA 1/4W
R2022	401 019 9501	CARBON 47 JA 1/4W
R2023	401 014 5102	CARBON 15K JA 1/4W
R2024	401 019 6104	CARBON 4.7 JA 1/4W
R2051	401 012 5609	CARBON 1K JA 1/4W
R2071	401 013 4106	CARBON 120 JA 1/4W
R2072	401 012 6903	CARBON 10K JA 1/4W
R2091	401 021 8905	CARBON 6.2K JA 1/4W
R2092	401 023 2703	CARBON 8.2K JA 1/4W
R2101	401 012 6903	CARBON 10K JA 1/4W
R2102	401 018 7904	CARBON 3.6K JA 1/4W
R2105	401 012 5609	CARBON 1K JA 1/4W
R2106	401 014 8509	CARBON 1.6K JA 1/4W
R2109	401 012 5609	CARBON 1K JA 1/4W
R2110	401 023 1607	CARBON 820 JA 1/4W
R2116	401 012 5609	CARBON 1K JA 1/4W
T2001	613 016 2205	OSC COIL 70KHZ
OR	613 094 3378	TRANS,OSC 70KHZ
VR201	613 001 9097	SEMI VR 100KB
OR	613 097 7915	VR,SEMI 100KB

SYSTEM CONTROL CIRCUIT(SY-A)

	613 132 3100	FLEXIBLE FLAT CABLES,CN331-CN701
C3001	403 017 0207	CERAMIC 20P J 50V
C3002	403 017 9705	CERAMIC 22P J 50V
C3003	403 002 4708	CERAMIC 0.1U Z 25V
C3004	403 002 4708	CERAMIC 0.1U Z 25V
C3005	403 001 1906	CERAMIC 0.01U M 16V
C3006	403 107 9905	ELECT 10U M 16V
C3007	403 070 4105	CERAMIC 120P K 50V
C3008	403 121 9509	CERAMIC 0.1U Z 50V
C3009	403 072 8200	CERAMIC 330P K 50V
C3071	403 001 1906	CERAMIC 0.01U M 16V
C3072	403 070 7205	CERAMIC 150P J 50V
C3073	403 001 1906	CERAMIC 0.01U M 16V
C3074	403 001 1906	CERAMIC 0.01U M 16V
C3075	403 001 1906	CERAMIC 0.01U M 16V
C3301	403 135 4101	ELECT 470U M 6.3V
C3302	403 002 4708	CERAMIC 0.1U Z 25V
C3303	403 002 4708	CERAMIC 0.1U Z 25V
CN301	613 120 9176	PLUG,20P
CN302	613 120 9176	PLUG,20P
D3001	407 051 6904	ZENER DIODE GZS5.6Y-BT
OR	407 099 5303	ZENER DIODE MTZJ5.6B-T-77
D3002	407 070 8101	ZENER DIODE GZS8.2Y-BT
OR	407 063 9504	ZENER DIODE MTZJ8.2B-T-77
D3003	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D3007	407 120 5807	DIODE AK04-V2
IC301	410 125 1606	IC UPD75238GJ-019-5BG
IC302	409 032 3308	IC MN1280-L
OR	409 243 4101	IC MN1380-L
L3071	613 014 0883	COIL,INDUCTOR 18UHK

LOCATION	PARTS NO.	DESCRIPTION
Q3001	405 018 2808	TR 2SC3402-AC
OR	405 000 3103	TR DTC114ES-DCTP
Q3002	405 018 2501	TR 2SC3399-AC
OR	405 000 6104	TR DTC144ES-DCTP
Q3003	405 018 2501	TR 2SC3399-AC
OR	405 000 6104	TR DTC144ES-DCTP
Q3004	405 018 2501	TR 2SC3399-AC
OR	405 000 6104	TR DTC144ES-DCTP
Q3071	405 016 1100	TR 2SC2839-F-SPA-AC
OR	405 016 0905	TR 2SC2839-E-SPA-AC
OR	405 012 9506	TR 2SC2058S-DCTP-Q
Q3072	405 019 2807	TR 2SC536-F-SPA-AC
OR	405 011 8500	TR 2SC1740S-DCTP-R
R3001	401 018 5702	CARBON 330K JA 1/4W
R3002	401 012 8006	CARBON 100K JA 1/4W
R3003	401 012 8006	CARBON 100K JA 1/4W
R3004	401 012 8006	CARBON 100K JA 1/4W
R3005	401 020 2805	CARBON 47K JA 1/4W
R3006	401 020 2805	CARBON 47K JA 1/4W
R3007	401 014 4006	CARBON 1.5K JA 1/4W
R3008	401 013 6308	CARBON 12K JA 1/4W
R3009	401 020 2805	CARBON 47K JA 1/4W
R3010	401 020 2805	CARBON 47K JA 1/4W
R3012	401 012 6903	CARBON 10K JA 1/4W
R3014	401 020 2805	CARBON 47K JA 1/4W
R3015	401 012 6903	CARBON 10K JA 1/4W
R3016	401 012 6903	CARBON 10K JA 1/4W
R3017	401 012 6903	CARBON 10K JA 1/4W
R3018	401 012 5609	CARBON 1K JA 1/4W
R3019	401 012 6903	CARBON 10K JA 1/4W
R3020	401 015 1509	CARBON 180 JA 1/4W
R3071	401 023 2703	CARBON 8.2K JA 1/4W
R3072	401 016 3700	CARBON 2.2K JA 1/4W
R3073	401 012 5609	CARBON 1K JA 1/4W
R3074	401 018 2701	CARBON 330 JA 1/4W
R3075	401 016 2505	CARBON 220 JA 1/4W
R3076	401 016 5704	CARBON 220K JA 1/4W
R3077	401 017 2702	CARBON 27K JA 1/4W
R3078	401 018 4804	CARBON 33K JA 1/4W
R3079	401 018 4804	CARBON 33K JA 1/4W
R3305	401 012 6903	CARBON 10K JA 1/4W
R3306	401 016 4707	CARBON 22K JA 1/4W
R3307	401 012 6903	CARBON 10K JA 1/4W
X3001	613 089 4069	RESONATOR,CERAMIC 6MHZ
OR	613 108 9570	RESONATOR,CERAMIC 6MHZ
OR	613 122 1444	RESONATOR,CERAMIC 6.0MHZ
OR	613 124 2135	RESONATOR,CERAMIC 6MHZ
X3002	613 109 0972	OSC,CRYSTAL 32KHZ

SERVO CIRCUIT(SV-A)

D3701	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D3702	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
Q3701	405 003 7603	TR 2SA1345-AC
OR	405 000 2205	TR DTA144ES-DCTP
R3701	401 018 4804	CARBON 33K JA 1/4W
R3702	401 012 6903	CARBON 10K JA 1/4W
R3703	401 012 6903	CARBON 10K JA 1/4W
R3704	401 012 8006	CARBON 100K JA 1/4W
VR351	613 097 7953	VR,SEMI 220KB
OR	613 001 9110	SEMI VR 220KB
VR353	613 112 4936	VR,SEMI 500KB

LOCATION	PARTS NO.	DESCRIPTION
VR353	613 001 9486	SEMI VR 500KB
VR354	613 112 4936	VR,SEMI 500KB
OR	613 001 9486	SEMI VR 500KB

POWER SUPPLY CIRCUIT(PW-A)

C5401	403 001 1609	CERAMIC 0.01U K 16V
C5402	403 163 7907	ELECT 47U M 6.3V
C5403	403 069 1207	CERAMIC 1000P K 50V
CN541	613 120 7882	PLUG,12P
D5401	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D5402	407 063 8705	ZENER DIODE MTZJ5.1C-T-77
D5403	407 053 7701	ZENER DIODE MTZ6.8C-T-77
D5404	407 078 2705	DIODE 1SS244-T-77
D5405	407 078 0305	ZENER DIODE MTZ24B-T-77
D5406	407 099 5105	ZENER DIODE MTZJ4.7B-T-77
D5411	407 120 5807	DIODE AK04-V2
D5422	407 063 8903	ZENER DIODE MTZJ5.6C-T-77
Q5401	405 088 9103	TR 2SA1703-S-AN
Q5402	405 089 2103	TR 2SC4483-S-AN
Q5403	405 006 7006	TR 2SA984K-E-AA
OR	405 006 7204	TR 2SA984K-F-AA
Q5404	405 006 7204	TR 2SA984K-F-AA
OR	405 006 7006	TR 2SA984K-E-AA
Q5421	405 089 2103	TR 2SC4483-S-AN
R5401	401 021 8905	CARBON 6.2K JA 1/4W
R5402	401 016 3700	CARBON 2.2K JA 1/4W
R5403	401 012 5609	CARBON 1K JA 1/4W
R5404 ⚠	402 041 5608	FUSIBLE RES 820 JA 1/4W
R5405	401 021 2903	CARBON 5.6K JA 1/4W
R5406	401 014 5102	CARBON 15K JA 1/4W
R5407	401 019 7705	CARBON 4.3K JA 1/4W
R5408 ⚠	402 004 1906	FUSIBLE RES 47 JA 1/4W
R5409	401 013 6308	CARBON 12K JA 1/4W
R5421	401 012 5609	CARBON 1K JA 1/4W

TUNER CIRCUIT(TN-A)

C6006	403 125 5606	ELECT 100U M 16V
C6008	403 109 6308	ELECT 1U M 50V
C6009	403 135 7409	ELECT 22U M 50V
C6010	403 121 9509	CERAMIC 0.1U Z 50V
C6015	403 002 4708	CERAMIC 0.1U Z 25V
C6017	403 073 6205	CERAMIC 470P J 50V
D6001	407 078 1104	ZENER DIODE MTZ33A-T-77
OR	407 078 1203	ZENER DIODE MTZ33B-T-77
IC602	409 148 5005	IC M6M80021P
OR	409 247 9706	IC XRM9021B
L6001	613 015 2695	HF CHOKE 56UH K
L6004	613 014 0821	COIL,INDUCTOR 5.6UHK
L6007	613 014 0821	COIL,INDUCTOR 5.6UHK
Q6002	405 004 4007	TR 2SA608-E-SPA-AC
OR	405 004 4601	TR 2SA608-F-SPA-AC
OR	405 006 1707	TR 2SA933S-TP-Q
OR	405 006 1806	TR 2SA933S-T93-R
OR	405 093 0508	TR KSA1175-Y
Q6003	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
OR	405 093 0607	TR KSC2785-Y
OR	405 011 8401	TR 2SC1740S-DCTP-Q

LOCATION	PARTS NO.	DESCRIPTION
Q6003	405 011 8500	TR 2SC1740S-DCTP-R
Q6005	405 003 7603	TR 2SA1345-AC
OR	405 000 2205	TR DTA144ES-DCTP
OR	405 063 9104	TR DTA144EL-TL2
Q6006	405 018 2501	TR 2SC3399-AC
OR	405 000 6104	TR DTC144ES-DCTP
R6001	401 018 2701	CARBON 330 JA 1/4W
R6002	401 019 0904	CARBON 390 JA 1/4W
R6006	401 019 3905	CARBON 390K JA 1/4W
R6007	401 017 3709	CARBON 270K JA 1/4W
R6008	401 012 5609	CARBON 1K JA 1/4W
R6010	401 012 6903	CARBON 10K JA 1/4W
R6014	401 015 9406	CARBON 2K JA 1/4W
R6026	401 018 5702	CARBON 330K JA 1/4W

RF CONVERTER CIRCUIT(CV-A)

C6601	403 134 8100	ELECT 100U M 6.3V
L6601	613 015 6631	COIL,INDUCTOR 15UHK
OR	613 014 8667	HF CHOKE 15UH K
L6602	613 015 6631	COIL,INDUCTOR 15UHK

COMPL PCB,VP-1

COMPL.NO. 613 124 3361

C1801	403 071 8102	CERAMIC 2200P K 50V
C1802	403 071 8102	CERAMIC 2200P K 50V
C1803	403 071 8102	CERAMIC 2200P K 50V
C1804	403 073 1200	CERAMIC 0.033U K 50V
C1806	403 071 8102	CERAMIC 2200P K 50V
C1807	403 073 1200	CERAMIC 0.033U K 50V
C1808	403 073 1200	CERAMIC 0.033U K 50V
C1812	403 069 5601	CERAMIC 0.01U K 50V
C1813	403 069 5601	CERAMIC 0.01U K 50V
C1814	403 073 1200	CERAMIC 0.033U K 50V
C1815	403 069 5601	CERAMIC 0.01U K 50V
C1816	403 069 5601	CERAMIC 0.01U K 50V
C1817	403 069 1702	CERAMIC 1000P K 50V
C1818	403 024 7206	CERAMIC 390P J 50V
C1819	403 023 4503	CERAMIC 330P J 50V
C1820	403 028 4201	CERAMIC 56P J 50V
C1821	403 026 2902	CERAMIC 47P J 50V
C1822	403 033 4609	CERAMIC 82P J 50V
C1823	403 191 8709	ELECT 1U M 50V
C1824	403 193 7809	ELECT 100U M 16V
C1825	403 154 3307	OS-SOLID 4.7U M 10V
C1827	403 069 5601	CERAMIC 0.01U K 50V
C1851	403 069 5601	CERAMIC 0.01U K 50V
C1852	403 022 8304	CERAMIC 33P J 50V
C1853	403 022 8304	CERAMIC 33P J 50V
C1854	403 026 2902	CERAMIC 47P J 50V
C1855	403 028 4201	CERAMIC 56P J 50V
C1861	403 069 5601	CERAMIC 0.01U K 50V
C1862	403 163 7907	ELECT 47U M 6.3V
C1891	403 191 8709	ELECT 1U M 50V
C1892	403 073 1200	CERAMIC 0.033U K 50V
C1893	403 073 1200	CERAMIC 0.033U K 50V
C1895	403 069 1702	CERAMIC 1000P K 50V
C1896	403 073 1200	CERAMIC 0.033U K 50V
CN181	613 120 7899	SOCKET,8P
IC181	409 161 9806	IC LA7321
J1856	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1857	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1861	401 037 5004	MT-GLAZE 0.000 ZA 1/10W

LOCATION	PARTS NO.	DESCRIPTION
J1877	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1891	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1899	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
L1802	613 014 8254	HF CHOKE 100UH J
OR	613 015 6204	COIL,INDUCTOR 100UHJ
L1803	613 014 8230	HF CHOKE 68UH J
OR	613 015 6181	COIL,INDUCTOR 68UHJ
L1804	613 014 0838	COIL,INDUCTOR 6.8UHK
OR	613 014 4355	HF CHOKE 6.8UH K
L1805	613 014 0968	COIL,INDUCTOR 82UHK
OR	613 014 4485	HF CHOKE 82UH K
L1806	613 014 0890	COIL,INDUCTOR 22UHK
OR	613 014 4416	HF CHOKE 22UH K
L1851	613 014 0821	COIL,INDUCTOR 5.6UHK
OR	613 014 4348	HF CHOKE 5.6UH K
L1852	613 014 0944	COIL,INDUCTOR 56UHK
OR	613 014 4461	HF CHOKE 56UH K
L1853	613 014 0876	COIL,INDUCTOR 15UHK
OR	613 014 4393	HF CHOKE 15UH K
L1854	613 014 0876	COIL,INDUCTOR 15UHK
OR	613 014 4393	HF CHOKE 15UH K
Q1851	405 035 6100	TR 2SC2413K-T96-Q
OR	405 015 9701	TR 2SC2814-F4-TB
Q1852	405 035 6100	TR 2SC2413K-T96-Q
OR	405 015 9701	TR 2SC2814-F4-TB
Q1855	405 014 4400	TR 2SC2412K-T96-Q
OR	405 014 4509	TR 2SC2412K-T96-R
OR	405 014 4608	TR 2SC2412K-T96-S
OR	405 015 8407	TR 2SC2812-L5-TB
OR	405 015 8704	TR 2SC2812-L6-TB
Q1891	405 029 3504	TR DTC144EK-T96
OR	405 018 1900	TR 2SC3395-TB
Q1892	405 029 3504	TR DTC144EK-T96
OR	405 018 1900	TR 2SC3395-TB
Q1893	405 029 3504	TR DTC144EK-T96
OR	405 018 1900	TR 2SC3395-TB
Q1894	405 029 3504	TR DTC144EK-T96
OR	405 018 1900	TR 2SC3395-TB
Q1895	405 029 3504	TR DTC144EK-T96
OR	405 018 1900	TR 2SC3395-TB
Q1896	405 029 3504	TR DTC144EK-T96
OR	405 018 1900	TR 2SC3395-TB
R1801	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R1802	401 038 8103	MT-GLAZE 6.8 JA 1/10W
R1803	401 038 0503	MT-GLAZE 22 JA 1/10W
R1804	401 038 0602	MT-GLAZE 220 JA 1/10W
R1805	401 037 6605	MT-GLAZE 120 JA 1/10W
R1806	401 038 2002	MT-GLAZE 270 JA 1/10W
R1807	401 038 7601	MT-GLAZE 560 JA 1/10W
R1808	401 038 6307	MT-GLAZE 470 JA 1/10W
R1851	401 037 5400	MT-GLAZE 1K JA 1/10W
R1852	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1853	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1854	401 038 5003	MT-GLAZE 390 JA 1/10W
R1855	401 038 5003	MT-GLAZE 390 JA 1/10W
R1856	401 038 9605	MT-GLAZE 750 JA 1/10W
R1857	401 039 0304	MT-GLAZE 820 JA 1/10W
R1858	401 039 0304	MT-GLAZE 820 JA 1/10W
R1859	401 038 9605	MT-GLAZE 750 JA 1/10W
R1860	401 038 2002	MT-GLAZE 270 JA 1/10W
R1869	401 037 5400	MT-GLAZE 1K JA 1/10W
R1873	401 038 9001	MT-GLAZE 680 JA 1/10W
R1874	401 038 0602	MT-GLAZE 220 JA 1/10W
R1891	401 038 0503	MT-GLAZE 22 JA 1/10W
R1892	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R1893	401 037 5608	MT-GLAZE 10K JA 1/10W
R1894	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R1895	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R1896	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R1897	401 038 6406	MT-GLAZE 4.7K JA 1/10W
VR181	613 002 0321	SEMI VR 470B
VR182	613 002 0345	SEMI VR 1KB

COMPL PCB,CP-2

COMPL.NO. 613 121 7164

SYSTEM CONTROL CIRCUIT(SY-B)

C3201	403 130 9408	NP-ELECT	10U M 25V
C3202	403 069 1207	CERAMIC	1000P K 50V
C3203	403 121 3408	ELECT	2.2U M 50V
C3204	403 002 2506	CERAMIC	0.01U M 25V
C3205	403 002 4807	CERAMIC	0.1U Z 25V
D3201	407 007 9904	DIODE GMA01-BT	
OR	407 012 4406	DIODE 1SS133-T-77	
IC321	409 114 4803	IC LB1641	
Q3201	405 019 2005	TR 2SC536-E-SPA-AC	
OR	405 019 2807	TR 2SC536-F-SPA-AC	
OR	405 011 8401	TR 2SC1740S-DCTP-Q	
OR	405 011 8500	TR 2SC1740S-DCTP-R	
R3201	401 020 1907	CARBON	4.7K JA 1/4W
R3202	401 020 1907	CARBON	4.7K JA 1/4W
R3203	401 020 1907	CARBON	4.7K JA 1/4W
R3204	401 020 1907	CARBON	4.7K JA 1/4W
R3205	401 020 1907	CARBON	4.7K JA 1/4W
R3206	401 020 2805	CARBON	47K JA 1/4W
R3207	401 018 4804	CARBON	33K JA 1/4W
R3208	401 014 7106	CARBON	1.5M JA 1/4W
R3209	401 016 4707	CARBON	22K JA 1/4W
R3210	401 012 6903	CARBON	10K JA 1/4W
R3211	401 012 6903	CARBON	10K JA 1/4W
R3212	402 036 3701	FUSIBLE RES	3.3 JA 1/2W
OR	402 036 4401	FUSIBLE RES	3.3 JA 1/2W
R3213	401 022 7105	CARBON	750 JA 1/4W
R3216	401 012 6903	CARBON	10K JA 1/4W
R3218	401 016 0402	CARBON	200K JA 1/4W
R3219	401 016 0402	CARBON	200K JA 1/4W
R3220	401 012 6903	CARBON	10K JA 1/4W
R3221	401 012 6903	CARBON	10K JA 1/4W

SERVO CIRCUIT(SV-B)

C3501	403 057 6801	POLYESTER	0.012U J 50V
C3502	403 135 4002	ELECT	47U M 6.3V
C3503	403 001 2606	CERAMIC	0.1U K 16V
C3504	403 071 6207	CERAMIC	220P K 50V
C3506	403 059 6502	POLYESTER	0.022U K 50V
C3507	403 070 9803	CERAMIC	0.015U K 50V
C3508	403 075 0706	CERAMIC	6800P K 50V
C3509	403 070 9803	CERAMIC	0.015U K 50V
C3510	403 145 8601	ELECT	22U M 16V
OR	403 042 8803	ELECT	22U M 16V
C3511	403 145 8601	ELECT	22U M 16V
OR	403 042 8803	ELECT	22U M 16V
C3512	403 063 0008	POLYESTER	6800P K 50V
C3513	403 168 6103	MT-POLYEST	0.1U J 50V
C3514	403 071 8102	CERAMIC	2200P K 50V
C3515	403 070 8806	CERAMIC	1500P K 50V
C3516	403 075 0706	CERAMIC	6800P K 50V
C3517	403 145 8601	ELECT	22U M 16V

LOCATION	PARTS NO.	DESCRIPTION
C3517	403 042 8803	ELECT 22U M 16V
C3518	403 145 8601	ELECT 22U M 16V
OR	403 042 8803	ELECT 22U M 16V
C3519	403 175 1009	MT-POLYEST 0.15U J 50V
C3520	403 135 4002	ELECT 47U M 6.3V
C3525	403 069 1702	CERAMIC 1000P K 50V
C3526	403 108 0000	ELECT 0.22U M 50V
C3527	403 069 5601	CERAMIC 0.01U K 50V
C3528	403 109 6308	ELECT 1U M 50V
C3529	403 119 6701	CERAMIC 0.068U K 16V
C3530	403 107 9905	ELECT 10U M 16V
C3531	403 135 7805	ELECT 3.3U M 50V
C3532	403 074 9502	CERAMIC 680P K 50V
C3533	403 069 1702	CERAMIC 1000P K 50V
C3534	403 159 0806	NP-ELECT 33U M 6.3V
C3535	403 069 1702	CERAMIC 1000P K 50V
C3536	403 061 3308	POLYESTER 0.039U J 50V
C3537	403 135 4002	ELECT 47U M 6.3V
C3540	403 063 7700	POLYESTER 0.082U K 50V
C3550	403 068 0409	CERAMIC 0.1U Z 25V
C3551	403 168 6103	MT-POLYEST 0.1U J 50V
C3552	403 168 6103	MT-POLYEST 0.1U J 50V
C3553	403 168 6103	MT-POLYEST 0.1U J 50V
C3554	403 062 0405	POLYESTER 0.047U K 50V
C3555	403 069 5601	CERAMIC 0.01U K 50V
C3556	403 086 2607	NP-ELECT 1U M 50V
C3557	403 069 5601	CERAMIC 0.01U K 50V
C3558	403 086 2607	NP-ELECT 1U M 50V
C3601	403 031 9200	CERAMIC 7P D 50V
C3602	403 071 6207	CERAMIC 220P K 50V
C3603	403 002 1905	CERAMIC 0.01U K 25V
C3604	403 121 9509	CERAMIC 0.1U Z 50V
C3606	403 191 8709	ELECT 1U M 50V
CN351	613 120 9183	SOCKET,20P
CN352	613 120 9183	SOCKET,20P
D3501	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D3502	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D3503	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D3504	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D3506	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D3509	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D3512	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D3513	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D3517	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D3520	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D3527	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D3528	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D3529	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D3530	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D3535	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D3536	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT

LOCATION	PARTS NO.	DESCRIPTION
D3539	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D3540	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D3541	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D3601	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D3602	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D3603	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
IC351	409 180 3601	IC LC7418-8086
IC352	409 159 8606	IC LA7122S
OR	409 178 3200	IC LA7124
IC353	409 246 8304	IC LC9105-B-513
L3601	613 014 1088	COIL,INDUCTOR 10UHJ
Q3501	405 014 4608	TR 2SC2412K-T96-S
OR	405 015 8902	TR 2SC2812-L7-TB
Q3502	405 003 7603	TR 2SA1345-AC
OR	405 000 2205	TR DTA144ES-DCTP
Q3503	405 014 4608	TR 2SC2412K-T96-S
OR	405 015 8902	TR 2SC2812-L7-TB
Q3504	405 018 1900	TR 2SC3395-TB
OR	405 029 3504	TR DTC144EK-T96
Q3505	405 015 8902	TR 2SC2812-L7-TB
OR	405 014 4608	TR 2SC2412K-T96-S
Q3506	405 018 2501	TR 2SC3399-AC
OR	405 000 6104	TR DTC144ES-DCTP
Q3507	405 018 2501	TR 2SC3399-AC
OR	405 000 6104	TR DTC144ES-DCTP
R3503	401 016 4707	CARBON 22K JA 1/4W
R3504	401 016 4707	CARBON 22K JA 1/4W
R3505	401 016 5704	CARBON 220K JA 1/4W
R3509	401 016 5704	CARBON 220K JA 1/4W
R3511	401 012 6903	CARBON 10K JA 1/4W
R3512	401 037 5707	MT-GLAZE 100K JA 1/10W
R3513	401 037 5707	MT-GLAZE 100K JA 1/10W
R3514	401 038 3801	MT-GLAZE 330K JA 1/10W
R3515	401 037 8005	MT-GLAZE 15K JA 1/10W
R3516	401 037 8104	MT-GLAZE 150K JA 1/10W
R3517	401 037 8104	MT-GLAZE 150K JA 1/10W
R3518	401 037 5608	MT-GLAZE 10K JA 1/10W
R3519	401 038 6505	MT-GLAZE 47K JA 1/10W
R3520	401 038 6505	MT-GLAZE 47K JA 1/10W
R3521	401 038 3801	MT-GLAZE 330K JA 1/10W
R3522	401 037 8104	MT-GLAZE 150K JA 1/10W
R3523	401 038 2200	MT-GLAZE 27K JA 1/10W
R3524	401 016 5704	CARBON 220K JA 1/4W
R3527	401 037 8104	MT-GLAZE 150K JA 1/10W
R3528	401 037 5707	MT-GLAZE 100K JA 1/10W
R3529	401 037 5608	MT-GLAZE 10K JA 1/10W
R3534	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R3535	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R3538	401 012 5609	CARBON 1K JA 1/4W
R3539	401 038 8806	MT-GLAZE 620K JA 1/10W
R3540	401 037 8104	MT-GLAZE 150K JA 1/10W
R3541	401 038 4006	MT-GLAZE 360 JA 1/10W
R3542	401 038 7106	MT-GLAZE 510 JA 1/10W
R3543	401 038 7106	MT-GLAZE 510 JA 1/10W
R3548	401 013 6308	CARBON 12K JA 1/4W
R3549	401 037 5707	MT-GLAZE 100K JA 1/10W
R3550	401 012 6903	CARBON 10K JA 1/4W
R3551	401 013 7206	CARBON 120K JA 1/4W
R3552	401 017 3709	CARBON 270K JA 1/4W

LOCATION	PARTS NO.	DESCRIPTION
R3553	401 015 4609	CARBON 180K JA 1/4W
R3555	401 018 5702	CARBON 330K JA 1/4W
R3560	401 012 5609	CARBON 1K JA 1/4W
R3561	401 015 2605	CARBON 1.8K JA 1/4W
R3563	401 037 5400	MT-GLAZE 1K JA 1/10W
R3564	401 037 5400	MT-GLAZE 1K JA 1/10W
R3565	401 038 9902	MT-GLAZE 750K JA 1/10W
R3566	401 037 5707	MT-GLAZE 100K JA 1/10W
R3571	401 037 5707	MT-GLAZE 100K JA 1/10W
R3572	401 037 5608	MT-GLAZE 10K JA 1/10W
R3576	401 023 4509	CARBON 820K JA 1/4W
R3580	401 018 5702	CARBON 330K JA 1/4W
R3581	401 023 7807	CARBON 91K JA 1/4W
R3584	401 016 4707	CARBON 22K JA 1/4W
R3585	401 015 4609	CARBON 180K JA 1/4W
R3593	401 038 3801	MT-GLAZE 330K JA 1/10W
R3594	401 014 4006	CARBON 1.5K JA 1/4W
R3595	401 012 9201	CARBON 1M JA 1/4W
R3601	401 037 5400	MT-GLAZE 1K JA 1/10W
R3602	401 012 8006	CARBON 100K JA 1/4W
R3603	401 012 8006	CARBON 100K JA 1/4W
R3604	401 012 6903	CARBON 10K JA 1/4W
R3605	401 012 6903	CARBON 10K JA 1/4W

COMPL PCB,PW-1

COMPL.NO.	613 124 5709	
C5001	404 044 7900	MT-POLYEST 0.22U M 250V
C5002	404 044 7108	MT-POLYEST 0.047U M 250V
C5003	404 052 4304	ELECT 62U M 400V
OR	404 053 6505	ELECT 56U M 400V
C5004	403 183 3309	MT-POLYEST 0.047U M 630V
C5005	403 137 5007	CERAMIC 100P K 1K
OR	403 137 5007	CERAMIC 100P K 1K
C5007	403 155 3603	ELECT 1U M 400V
C5008	403 094 8806	OS-SOLID 2.2U M 25V
C5009	403 061 7702	POLYESTER 4700P J 50V
C5010	403 018 6208	CERAMIC 220P J 50V
OR	403 214 9706	CERAMIC 220P J 50V
C5011	403 001 5003	CERAMIC 2200P K 16V
C5014	403 058 9207	POLYESTER 0.018U J 50V
C5015	403 058 9207	POLYESTER 0.018U J 50V
C5020 ⚠	404 034 7507	CERAMIC 2200P M 400V
OR ⚠	404 032 6304	CERAMIC 2200P M 400V
C5021 ⚠	404 034 7507	CERAMIC 2200P M 400V
OR ⚠	404 032 6304	CERAMIC 2200P M 400V
C5022	404 034 7507	CERAMIC 2200P M 400V
OR	404 032 6304	CERAMIC 2200P M 400V
C5023	404 034 7507	CERAMIC 2200P M 400V
OR	404 032 6304	CERAMIC 2200P M 400V
C5101	403 176 2203	ELECT 1000U M 25V
C5102	403 199 5809	ELECT 470U M 16V
C5104	403 205 2105	ELECT 1200U M 16V
C5105	403 176 3507	ELECT 470U M 10V
C5106	403 154 8302	ELECT 47U M 50V
C5107	403 154 8302	ELECT 47U M 50V
C5108	403 155 5508	ELECT 330U M 6.3V
C5109	403 004 0500	CERAMIC 0.047U K 25V
C5110	403 003 4806	CERAMIC 0.027U K 25V
CN511	613 120 7905	SOCKET,12P
D5001 ⚠	407 010 9403	DIODE S1WBA60
OR ⚠	407 134 8900	DIODE DBC10G
D5003	407 091 6704	DIODE AP01C-V0
D5004	407 100 6909	DIODE AG01-V2
D5005	407 078 2705	DIODE 1SS244-T-77
D5006	407 050 9302	ZENER DIODE GZB18C
D5007	407 078 2705	DIODE 1SS244-T-77
D5008	407 078 2705	DIODE 1SS244-T-77
D5009	407 006 0902	DIODE ERB12-02
D5010	407 004 9808	DIODE DSK10E-BT
OR	407 005 9203	DIODE ERA15-04V5
D5011	407 097 0300	PHOTO COUPLE PC113A
D5101	407 100 9108	DIODE DLE30C-KC9
D5103	407 144 7108	DIODE ERB81-004L6
D5104	407 100 6909	DIODE AG01-V2
D5105	407 078 2705	DIODE 1SS244-T-77
D5106	407 078 2705	DIODE 1SS244-T-77
D5107	407 100 6909	DIODE AG01-V2
F5001 ⚠	423 006 1305	FUSE 250V 2A
IC511	409 067 7203	IC L5431-AA
L5002	636 026 2317	COIL,LINE FILTER
L5101	613 017 0354	CORE
L5102	613 110 4198	COIL,INDUCTOR 10UH K
Q5001	405 103 7909	TR 2SK1460-YA
Q5002	405 017 9600	TR 2SC3330-T
Q5003	405 105 0700	TR 2SB1050-R
R5001 ⚠	401 001 8000	SOLID 2.7M MA 1/2W
OR ⚠	401 001 7904	SOLID 2.7M KA 1/2W
R5002 ⚠	401 080 0605	WIRE WOUND 2.2 KA 2W
R5003	401 069 4402	OXIDE-MT 68K JA 2W
R5004	401 165 7406	OXIDE-MT 240K JA 1W
R5005	401 069 4402	OXIDE-MT 68K JA 2W
R5007	401 009 5001	CARBON 33 JA 1/2W
R5008	401 007 0305	CARBON 100 JA 1/2W
R5009	401 012 8006	CARBON 100K JA 1/4W
R5010	401 012 4404	CARBON 100 JA 1/4W
R5011	401 011 8809	CARBON 1 JA 1/4W
R5012	401 016 1409	CARBON 22 JA 1/4W
R5013	401 012 6903	CARBON 10K JA 1/4W
R5014	401 017 2702	CARBON 27K JA 1/4W
R5015	401 057 5107	OXIDE-MT 0.47 JA 1W
R5016	401 090 1104	CARBON 1M JA 1/2W
R5101 ⚠	402 004 1005	FUSIBLE RES 2.7 JA 1/4W
R5103	401 013 5202	CARBON 1.2K JA 1/4W
R5104	401 016 3700	CARBON 2.2K JA 1/4W
R5105	401 107 6009	MT-FILM 1.6K FD 1/4W
R5106	401 180 7108	MT-FILM 2.05K FD 1/4W
R5107	401 012 4404	CARBON 100 JA 1/4W
R5108	401 012 6903	CARBON 10K JA 1/4W
T5001 ⚠	613 122 1086	TRANS,SW

COMPL PCB,PW-2

COMPL.NO.	613 122 0812	
C5201	403 002 4708	CERAMIC 0.1U Z 25V
C5203	403 126 4509	ELECT 100U M 16V
C5204	403 156 1004	ELECT 47U M 16V
C5205	403 156 1004	ELECT 47U M 16V
D5201	407 125 9008	ZENER DIODE MTZJ2.0A-T-77
D5203	407 004 9709	DIODE DSK10C-BT
IC521	409 234 7005	IC SI-3120CA
PR521 ⚠	423 020 7604	FUSE 125V 2.5A
Q5201	405 019 1909	TR 2SC536-E-NP-AA
Q5202	405 022 7202	TR 2SD1666-S
R5201	401 017 1705	CARBON 2.7K JA 1/4W

LOCATION	PARTS NO.	DESCRIPTION
R5202	401 017 1705	CARBON 2.7K JA 1/4W
COMPL PCB,PW-3		
COMPL.NO.	613 122 0829	
CN531	613 120 7912	CONNECTOR,INLET
IF PACK		
COMPL.NO.	613 096 5653	
C6107	403 071 8102	CERAMIC 2200P K 50V
C6108	403 069 1702	CERAMIC 1000P K 50V
C6110	403 071 8102	CERAMIC 2200P K 50V
C6113	403 075 0706	CERAMIC 6800P K 50V
C6114	403 012 6808	CERAMIC 15P J 50V
C6115	403 070 9803	CERAMIC 0.015U K 50V
C6116	403 049 1005	ELECT 1U M 50V
C6117	403 069 1702	CERAMIC 1000P K 50V
C6119	403 075 0706	CERAMIC 6800P K 50V
C6120	403 053 9707	ELECT 4.7U M 35V
C6121	403 075 5305	CERAMIC 8200P K 50V
C6122	403 041 9603	ELECT 10U M 16V
C6123	403 075 0706	CERAMIC 6800P K 50V
C6124	403 069 5601	CERAMIC 0.01U K 50V
C6125	403 022 8205	CERAMIC 33P J 50V
C6127	403 017 0900	CERAMIC 20P J 50V
C6128	403 075 0706	CERAMIC 6800P K 50V
C6129	403 043 9700	ELECT 47U M 16V
C6130	403 019 2209	CERAMIC 24P J 50V
C6131	403 069 5601	CERAMIC 0.01U K 50V
C6132	403 041 9603	ELECT 10U M 16V
C6133	403 014 3409	CERAMIC 18P J 50V
C6134	403 033 4708	CERAMIC 82P J 50V
C6137	403 033 4708	CERAMIC 82P J 50V
C6138	403 075 0706	CERAMIC 6800P K 50V
C6139	403 047 9201	ELECT 0.1U M 50V
D6103	407 012 4406	DIODE 1SS133
IC611	409 019 3307	IC LA7530N
L6102	613 014 0807	COIL,INDUCTOR 3.9UHK
L6103	613 098 8393	COIL,CHOKE 1.2UH
L6105	613 014 0821	COIL,INDUCTOR 5.6UHK
L6106	613 014 0869	COIL,INDUCTOR 12UHK
L6107	613 014 0852	COIL,INDUCTOR 10UHK
L6108	613 014 0913	COIL,INDUCTOR 33UHK
Q6101	405 015 5505	TR 2SC2757-T1B-T33
Q6102	405 011 8401	TR 2SC1740S-Q
Q6103	405 021 2406	TR 2SD1048-X7-TB
R6101	401 038 9506	MT-GLAZE 75 JA 1/10W
R6102	401 014 2804	CARBON 150 JA 1/4W
R6104	401 037 7800	MT-GLAZE 150 JA 1/10W
R6106	401 038 9704	MT-GLAZE 7.5K JA 1/10W
R6107	401 037 7909	MT-GLAZE 1.5K JA 1/10W
R6108	401 038 7601	MT-GLAZE 560 JA 1/10W
R6109	401 038 0503	MT-GLAZE 22 JA 1/10W
R6110	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R6111	401 038 6307	MT-GLAZE 470 JA 1/10W
R6112	401 038 2002	MT-GLAZE 270 JA 1/10W
R6113	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R6114	401 038 7205	MT-GLAZE 5.1K JA 1/10W
R6115	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R6116	401 038 0800	MT-GLAZE 22K JA 1/10W
R6117	401 012 6903	CARBON 10K JA 1/4W
R6118	401 038 4105	MT-GLAZE 3.6K JA 1/10W
R6119	401 037 5400	MT-GLAZE 1K JA 1/10W

LOCATION	PARTS NO.	DESCRIPTION
R6120	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R6121	401 038 2903	MT-GLAZE 300 JA 1/10W
R6124	401 037 8005	MT-GLAZE 15K JA 1/10W
R6125	402 004 1203	FUSIBLE RES 22 JA 1/4W
R6126	401 039 0809	MT-GLAZE 91 JA 1/10W
R6127	401 037 5707	MT-GLAZE 100K JA 1/10W
R6128	401 037 5202	MT-GLAZE 100 JA 1/10W
R6130	401 037 5202	MT-GLAZE 100 JA 1/10W
R6132	401 037 7503	MT-GLAZE 130K JA 1/10W
R6133	401 037 5400	MT-GLAZE 1K JA 1/10W
R6134	401 012 6903	CARBON 10K JA 1/4W
R6135	401 037 8104	MT-GLAZE 150K JA 1/10W
R6136	401 038 2903	MT-GLAZE 300 JA 1/10W
R6138	401 037 5202	MT-GLAZE 100 JA 1/10W
T6003	613 098 8379	TRANS,IF
T6004	613 098 8386	TRANS,IF
VR611	613 001 9035	SEMI VR 10KB
XF611	421 002 8809	SAW F F1035DS
XF612	613 086 4468	FILTER
XF613	613 085 9457	FILTER
XF614	613 084 1667	FILTER
XF615	613 101 7917	FILTER
COMPL PCB,TN-7		
COMPL.NO.	613 127 8035	
B6901	405 018 1900	TR 2SC3395-TB
OR	405 029 3504	TR DTC144EK-T96
C6901	403 068 0409	CERAMIC 0.1U Z 25V
OR	403 116 2508	CERAMIC 0.1U Z 25V
C6902	403 189 2405	ELECT 10U M 16V
C6903	403 072 3403	CERAMIC 0.022U Z 50V
C6904	403 193 8400	ELECT 0.22U M 50V
C6921	403 068 0409	CERAMIC 0.1U Z 25V
OR	403 116 2508	CERAMIC 0.1U Z 25V
D6901	407 004 0706	DIODE DCB015-TB
OR	407 003 3609	DIODE DAN202K-T-96
D6902	407 003 5108	DIODE DA204K-T96
J6901	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
Q6901	405 015 8308	TR 2SC2812-L4-TB
OR	405 015 8407	TR 2SC2812-L5-TB
OR	405 014 4400	TR 2SC2412K-T96-Q
OR	405 014 4509	TR 2SC2412K-T96-R
OR	405 015 8704	TR 2SC2812-L6-TB
Q6902	405 030 7201	TR 2SA1338-4-TB
OR	405 030 7300	TR 2SA1338-5-TB
Q6903	405 015 8308	TR 2SC2812-L4-TB
OR	405 015 8407	TR 2SC2812-L5-TB
OR	405 014 4400	TR 2SC2412K-T96-Q
OR	405 014 4509	TR 2SC2412K-T96-R
OR	405 015 8704	TR 2SC2812-L6-TB
R6901	401 037 5400	MT-GLAZE 1K JA 1/10W
R6902	401 038 3504	MT-GLAZE 330 JA 1/10W
R6903	401 038 8509	MT-GLAZE 620 JA 1/10W
R6904	401 037 5608	MT-GLAZE 10K JA 1/10W
R6905	401 038 3801	MT-GLAZE 330K JA 1/10W
R6906	401 037 5608	MT-GLAZE 10K JA 1/10W
R6907	401 038 3603	MT-GLAZE 3.3K JA 1/10W
R6908	401 039 0205	MT-GLAZE 82 JA 1/10W
R6909	401 037 5400	MT-GLAZE 1K JA 1/10W
R6910	401 038 7106	MT-GLAZE 510 JA 1/10W

LOCATION	PARTS NO.	DESCRIPTION
R6911	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R6912	401 038 5102	MT-GLAZE 3.9K JA 1/10W
T6901	613 109 0958	TRANS,IF
OR	613 109 0965	TRANS,IF
COMPL PCB,TM-1		
COMPL.NO.	613 129 6060	
	613 121 6617	HOLDER,DIGITRON
A7001	613 113 2672	FLUORESCENT TUBE
C7001	403 155 2804	DL-ELECT 0.047F Z 5.5V
OR	403 212 9104	DL-ELECT 0.1F Z 5.5V
D7006	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7007	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7009	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7010	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7011	407 012 4406	DIODE 1SS133-T-77
OR	407 007 9904	DIODE GMA01-BT
D7013	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7025	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7026	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7028	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D7034	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
R7001	401 012 5609	CARBON 1K JA 1/4W
R7002	401 012 5609	CARBON 1K JA 1/4W
R7003	401 012 5609	CARBON 1K JA 1/4W
R7004	401 012 5609	CARBON 1K JA 1/4W
RR701	613 122 9198	IR RECEIVER PACK UNIT
OR	613 129 0938	IR RECEIVER PACK UNIT
OR	613 103 9490	IR RECEIVER PACK UNIT
S7001	613 006 3649	PUSH SWITCH,REW
OR	613 079 4130	SW,PUSH,REW
OR	613 092 1734	SW,PUSH,REW
OR	613 092 0751	SW,PUSH,REW
S7002	613 006 3649	PUSH SWITCH,FF
OR	613 079 4130	SW,PUSH,FF
OR	613 092 1734	SW,PUSH,FF
OR	613 092 0751	SW,PUSH,FF
S7005	613 006 3649	PUSH SWITCH,CH UP
OR	613 079 4130	SW,PUSH,CH UP
OR	613 092 1734	SW,PUSH,CH UP
OR	613 092 0751	SW,PUSH,CH UP
S7006	613 079 4130	SW,PUSH,TR+
OR	613 092 1734	SW,PUSH,TR+
OR	613 092 0751	SW,PUSH,TR+
OR	613 006 3649	PUSH SWITCH,TR+
S7011	613 006 3649	PUSH SWITCH,PLAY
OR	613 079 4130	SW,PUSH,PLAY
OR	613 092 1734	SW,PUSH,PLAY
OR	613 092 0751	SW,PUSH,PLAY
S7012	613 006 3649	PUSH SWITCH,STOP
OR	613 079 4130	SW,PUSH,STOP
OR	613 092 1734	SW,PUSH,STOP

LOCATION	PARTS NO.	DESCRIPTION
S7012	613 092 0751	SW,PUSH,STOP
S7015	613 006 3649	PUSH SWITCH,CH DOWN
OR	613 079 4130	SW,PUSH,CH DOWN
OR	613 092 1734	SW,PUSH,CH DOWN
OR	613 092 0751	SW,PUSH,CH DOWN
S7016	613 006 3649	PUSH SWITCH,TR-
OR	613 079 4130	SW,PUSH,TR-
OR	613 092 1734	SW,PUSH,TR-
OR	613 092 0751	SW,PUSH,TR-
S7018	613 006 3649	PUSH SWITCH,DIMMER
OR	613 079 4130	SW,PUSH,DIMMER
OR	613 092 1734	SW,PUSH,DIMMER
OR	613 092 0751	SW,PUSH,DIMMER
S7021	613 006 3649	PUSH SWITCH,REC
OR	613 079 4130	SW,PUSH,REC
OR	613 092 1734	SW,PUSH,REC
OR	613 092 0751	SW,PUSH,REC
S7022	613 006 3649	PUSH SWITCH,P/S
OR	613 079 4130	SW,PUSH,P/S
OR	613 092 1734	SW,PUSH,P/S
OR	613 092 0751	SW,PUSH,P/S
S7024	613 006 3649	PUSH SWITCH,PRESET
OR	613 079 4130	SW,PUSH,PRESET
OR	613 092 1734	SW,PUSH,PRESET
OR	613 092 0751	SW,PUSH,PRESET
S7025	613 006 3649	PUSH SWITCH,OK
OR	613 079 4130	SW,PUSH,OK
OR	613 092 1734	SW,PUSH,OK
OR	613 092 0751	SW,PUSH,OK
COMPL PCB,TM-2		
COMPL.NO.	613 120 6113	
S7101	613 006 3649	PUSH SWITCH,POWER
OR	613 079 4130	SW,PUSH,POWER
OR	613 092 1734	SW,PUSH,POWER
OR	613 092 0751	SW,PUSH,POWER
S7102	613 092 1734	SW,PUSH,EJECT
OR	613 092 0751	SW,PUSH,EJECT
S7103	613 006 3649	PUSH SWITCH,ALL CLEAR
OR	613 079 4130	SW,PUSH,ALL CLEAR
OR	613 092 1734	SW,PUSH,ALL CLEAR
OR	613 092 0751	SW,PUSH,ALL CLEAR
VR711	613 122 4599	VR,ROTARY 10KB
COMPL PCB,TM-6		
COMPL.NO.	613 129 6121	
B7601	405 018 2402	TR 2SC3398-TB
C7601	403 155 2804	DL-ELECT 0.047F Z 5.5V
C7602	403 041 2703	ELECT 47U M 10V
C7603	403 039 3507	ELECT 470U M 6.3V
C7604	403 069 9500	CERAMIC 0.01U Z 50V
C7605	403 069 9500	CERAMIC 0.01U Z 50V
C7606	403 069 9500	CERAMIC 0.01U Z 50V
C7609	403 041 9405	ELECT 10U M 16V
C7610	403 069 9500	CERAMIC 0.01U Z 50V
C7611	403 069 9500	CERAMIC 0.01U Z 50V
C7625	403 041 2109	ELECT 47U M 10V
C7640	403 012 6808	CERAMIC 15P J 50V
C7642	403 069 9500	CERAMIC 0.01U Z 50V
C7643	403 069 9500	CERAMIC 0.01U Z 50V
C7644	403 049 0800	ELECT 1U M 50V
C7646	403 043 9106	ELECT 47U M 16V
C7651	403 161 6902	NP-ELECT 2.2U M 50V
C7652	403 012 6907	CERAMIC 15P J 50V
C7653	403 069 1702	CERAMIC 1000P K 50V

LOCATION	PARTS NO.	DESCRIPTION
C7654	403 026 7600	CERAMIC 470P J 50V
C7655	403 072 1607	CERAMIC 0.022U K 50V
C7656	403 020 5602	CERAMIC 270P J 50V
C7657	403 009 5807	CERAMIC 100P J 50V
C7658	403 012 6907	CERAMIC 15P J 50V
C7659	403 020 0508	CERAMIC 27P J 50V
C7660	403 067 7300	MT-COMPO 0.33U J 50V
C7661	403 068 3202	CERAMIC 0.033U K 25V
C7662	403 049 0800	ELECT 1U M 50V
C7663	403 041 9405	ELECT 10U M 16V
C7664	403 073 1200	CERAMIC 0.033U K 50V
C7665	403 014 3508	CERAMIC 18P J 50V
C7666	403 018 0602	CERAMIC 22P J 50V
C7667	403 018 7502	CERAMIC 220P J 50V
C7668	403 130 4106	CERAMIC 0.068U K 25V
OR	403 228 7408	CERAMIC 0.068U K 25V
C7669	403 043 9601	ELECT 47U M 16V
C7670	403 069 9500	CERAMIC 0.01U Z 50V
C7671	403 069 9500	CERAMIC 0.01U Z 50V
C7672	403 041 2703	ELECT 47U M 10V
C7673	403 069 9500	CERAMIC 0.01U Z 50V
C7674	403 042 8308	ELECT 22U M 16V
C7675	403 042 8308	ELECT 22U M 16V
C7676	403 042 8308	ELECT 22U M 16V
C7677	403 072 1607	CERAMIC 0.022U K 50V
C7678	403 026 2902	CERAMIC 47P J 50V
C7679	403 069 1702	CERAMIC 1000P K 50V
C7680	403 049 0800	ELECT 1U M 50V
C7681	403 068 0409	CERAMIC 0.1U Z 25V
C7682	403 093 8302	OS-SOLID 47U M 10V
C7683	403 069 9500	CERAMIC 0.01U Z 50V
C7684	403 068 0409	CERAMIC 0.1U Z 25V
C7685	403 049 0800	ELECT 1U M 50V
C7686	403 069 5601	CERAMIC 0.01U K 50V
C7687	403 069 1702	CERAMIC 1000P K 50V
C7688	403 049 0800	ELECT 1U M 50V
C7689	403 086 0108	NP-ELECT 4.7U M 25V
C7691	403 049 0800	ELECT 1U M 50V
C7692	403 042 3006	ELECT 100U M 16V
C7693	403 042 3006	ELECT 100U M 16V
C7694	403 042 3006	ELECT 100U M 16V
C7695	403 068 0409	CERAMIC 0.1U Z 25V
C7696	403 074 3104	CERAMIC 0.047U Z 50V
C7698	403 073 9107	CERAMIC 4700P K 50V
C7699	403 206 8601	CERAMIC 0.33U Z 16V
CT761	613 002 6545	TRIMMER
D7602	407 120 5807	DIODE AK04-V2
D7603	407 004 0201	DIODE DCA015-TB
OR	407 003 4507	DIODE DAP202K-T-96
D7657	407 004 0201	DIODE DCA015-TB
OR	407 003 4507	DIODE DAP202K-T-96
D7659	407 004 0201	DIODE DCA015-TB
OR	407 003 4507	DIODE DAP202K-T-96
D7660	407 004 0201	DIODE DCA015-TB
OR	407 003 4507	DIODE DAP202K-T-96
IC761	409 120 6402	IC P8031AH
IC762	410 126 0905	IC TMS27PC512-20NL.S17
IC763	409 194 6100	IC SRM2264LC-10
OR	409 194 6209	IC SRM2264LC-12
OR	409 225 6000	IC LH5164N-10L
OR	409 239 7406	IC LH5160N-10TL
OR	409 240 1004	IC LH5160N-10L
IC764	409 052 6907	IC TC74HC373P
OR	409 067 5506	IC LC74HC373
IC765	409 032 3704	IC MN1280-R
OR	409 243 4200	IC MN1380-R

LOCATION	PARTS NO.	DESCRIPTION
IC766	409 184 0507	IC SDA5231
OR	409 107 8108	IC SAA5231
OR	409 265 0808	IC SDA5231-2
IC767	409 196 0304	IC SDA5243
OR	409 211 2603	IC SAA5243P/E
OR	409 262 4106	IC SDA5243-2
IC768	409 194 6100	IC SRM2264LC-10
OR	409 194 6209	IC SRM2264LC-12
OR	409 225 6000	IC LH5164N-10L
OR	409 239 7406	IC LH5160N-10TL
OR	409 240 1004	IC LH5160N-10L
IC769	409 221 4000	IC MC1378P
L7601	613 094 3279	RF CHOKE 10UH K
L7602	613 094 3279	RF CHOKE 10UH K
L7604	613 094 3279	RF CHOKE 10UH K
L7605	613 013 7807	HF CHOKE 2.2UH
L7606	613 017 0316	CORE
L7607	613 094 3279	RF CHOKE 10UH K
L7651	613 014 0876	COIL,INDUCTOR 15UHK
Q7601	405 015 8407	TR 2SC2812-L5-TB
OR	405 015 8704	TR 2SC2812-L6-TB
Q7602	405 015 8407	TR 2SC2812-L5-TB
OR	405 015 8704	TR 2SC2812-L6-TB
Q7651	405 002 6508	TR 2SA1179-M5-TB
OR	405 002 6706	TR 2SA1179-M6-TB
Q7653	405 015 8407	TR 2SC2812-L5-TB
OR	405 015 8704	TR 2SC2812-L6-TB
Q7654	405 002 6508	TR 2SA1179-M5-TB
OR	405 002 6706	TR 2SA1179-M6-TB
Q7655	405 002 6508	TR 2SA1179-M5-TB
OR	405 002 6706	TR 2SA1179-M6-TB
Q7656	405 002 6508	TR 2SA1179-M5-TB
OR	405 002 6706	TR 2SA1179-M6-TB
Q7657	405 015 8407	TR 2SC2812-L5-TB
OR	405 015 8704	TR 2SC2812-L6-TB
Q7658	405 002 6508	TR 2SA1179-M5-TB
OR	405 002 6706	TR 2SA1179-M6-TB
Q7659	405 002 6508	TR 2SA1179-M5-TB
OR	405 002 6706	TR 2SA1179-M6-TB
Q7660	405 015 8407	TR 2SC2812-L5-TB
OR	405 015 8704	TR 2SC2812-L6-TB
R7601	401 037 5400	MT-GLAZE 1K JA 1/10W
R7602	401 037 5400	MT-GLAZE 1K JA 1/10W
R7603	401 037 5400	MT-GLAZE 1K JA 1/10W
R7604	401 038 0602	MT-GLAZE 220 JA 1/10W
R7605	401 038 3702	MT-GLAZE 33K JA 1/10W
R7606	401 038 3702	MT-GLAZE 33K JA 1/10W
R7607	401 037 5608	MT-GLAZE 10K JA 1/10W
R7610	401 038 7809	MT-GLAZE 56K JA 1/10W
R7611	401 038 7809	MT-GLAZE 56K JA 1/10W
R7612	401 037 5806	MT-GLAZE 1M JA 1/10W
R7614	401 037 5202	MT-GLAZE 100 JA 1/10W
R7615	401 037 5608	MT-GLAZE 10K JA 1/10W
R7616	401 037 5608	MT-GLAZE 10K JA 1/10W
R7617	401 037 5608	MT-GLAZE 10K JA 1/10W
R7618	401 037 5608	MT-GLAZE 10K JA 1/10W
R7619	401 038 9506	MT-GLAZE 75 JA 1/10W
R7620	401 038 3603	MT-GLAZE 3.3K JA 1/10W
R7621	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R7623	401 038 2101	MT-GLAZE 2.7K JA 1/10W
R7624	401 037 9309	MT-GLAZE 18K JA 1/10W
R7625	401 038 6604	MT-GLAZE 470K JA 1/10W
R7626	401 037 5608	MT-GLAZE 10K JA 1/10W
R7627	401 037 5806	MT-GLAZE 1M JA 1/10W
R7629	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R7631	401 038 6406	MT-GLAZE 4.7K JA 1/10W

LOCATION	PARTS NO.	DESCRIPTION
R7632	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R7633	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R7634	401 038 2200	MT-GLAZE 27K JA 1/10W
R7635	401 037 8005	MT-GLAZE 15K JA 1/10W
R7636	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R7637	401 038 9001	MT-GLAZE 680 JA 1/10W
R7638	401 037 5608	MT-GLAZE 10K JA 1/10W
R7640	401 038 9506	MT-GLAZE 75 JA 1/10W
R7641	401 037 5806	MT-GLAZE 1M JA 1/10W
R7642	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R7643	401 038 5904	MT-GLAZE 4.3K JA 1/10W
R7644	401 037 5608	MT-GLAZE 10K JA 1/10W
R7645	401 037 5202	MT-GLAZE 100 JA 1/10W
R7646	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R7649	401 038 6208	MT-GLAZE 47 JA 1/10W
R7650	401 037 5608	MT-GLAZE 10K JA 1/10W
R7651	401 037 6704	MT-GLAZE 1.2K JA 1/10W
R7652	401 038 3603	MT-GLAZE 3.3K JA 1/10W
R7653	401 038 7601	MT-GLAZE 560 JA 1/10W
R7654	401 038 3504	MT-GLAZE 330 JA 1/10W
R7655	401 038 7809	MT-GLAZE 56K JA 1/10W
R7659	401 037 5400	MT-GLAZE 1K JA 1/10W
R7660	401 037 5400	MT-GLAZE 1K JA 1/10W
R7661	401 037 5608	MT-GLAZE 10K JA 1/10W
R7662	401 038 2002	MT-GLAZE 270 JA 1/10W
R7666	401 037 5202	MT-GLAZE 100 JA 1/10W
R7668	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R7669	401 038 2002	MT-GLAZE 270 JA 1/10W
R7670	401 038 2002	MT-GLAZE 270 JA 1/10W
R7671	401 038 2002	MT-GLAZE 270 JA 1/10W
R7672	401 038 9001	MT-GLAZE 680 JA 1/10W
R7673	401 037 5400	MT-GLAZE 1K JA 1/10W
R7674	401 038 4006	MT-GLAZE 360 JA 1/10W
R7675	401 038 8509	MT-GLAZE 620 JA 1/10W
R7676	401 037 9101	MT-GLAZE 180 JA 1/10W
R7677	401 038 9506	MT-GLAZE 75 JA 1/10W
R7678	401 038 9001	MT-GLAZE 680 JA 1/10W
R7679	401 037 5400	MT-GLAZE 1K JA 1/10W
R7680	401 038 4006	MT-GLAZE 360 JA 1/10W
R7681	401 038 8509	MT-GLAZE 620 JA 1/10W
R7682	401 037 9101	MT-GLAZE 180 JA 1/10W
R7683	401 038 9506	MT-GLAZE 75 JA 1/10W
R7692	401 037 5608	MT-GLAZE 10K JA 1/10W
R7693	401 038 9001	MT-GLAZE 680 JA 1/10W
R7694	401 037 5400	MT-GLAZE 1K JA 1/10W
R7695	401 038 4006	MT-GLAZE 360 JA 1/10W
R7696	401 038 8509	MT-GLAZE 620 JA 1/10W
R7697	401 037 9101	MT-GLAZE 180 JA 1/10W
R7698	401 038 9506	MT-GLAZE 75 JA 1/10W
R7699	401 037 9101	MT-GLAZE 180 JA 1/10W
X7601	613 099 3083	RESONATOR,CERAMIC 12MHZ
X7651	613 098 5088	OSC,CRYSTAL 13.875MHZ
X7652	613 099 3090	RESONATOR,CERAMIC 6MHZ
X7653	613 119 1624	OSC,CRYSTAL 17.734475MHZ
X7654	613 118 1632	RESONATOR,CERAMIC 4MHZ
XF761	613 125 5654	FILTER,4.43MHZ
XF762	613 103 3924	FILTER,3MHZ
XF763	613 086 4475	FILTER
XF764	613 086 4475	FILTER
XF765	613 086 4505	FILTER

COMPL PCB,TB-1

COMPL.NO.	613 125 3926	
C8501	403 189 2405	ELECT 10U M 16V
C8503	403 189 2405	ELECT 10U M 16V
C8507	403 189 2405	ELECT 10U M 16V

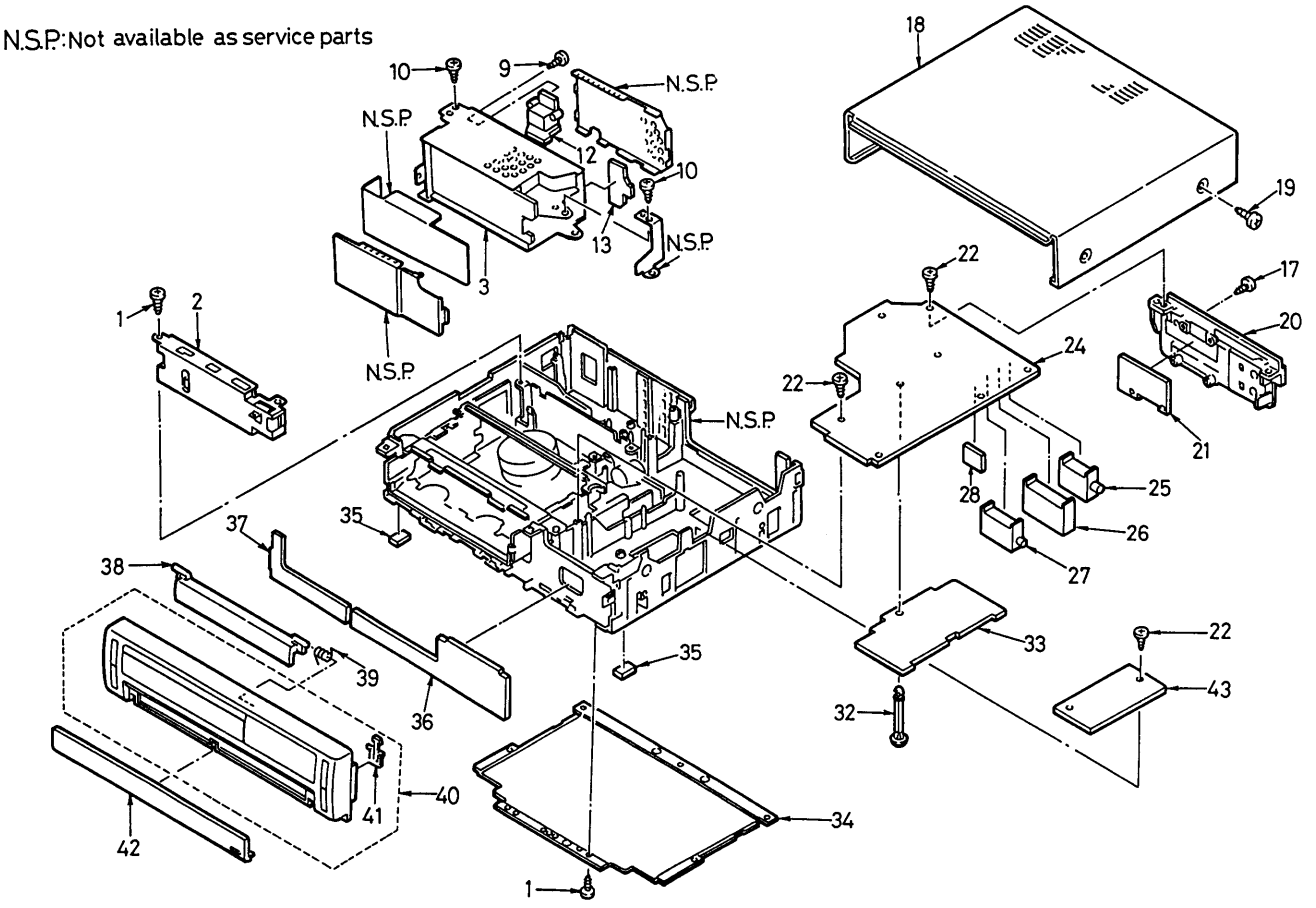
LOCATION	PARTS NO.	DESCRIPTION
C8531	403 163 8409	ELECT 47U M 16V
C8551	403 069 1207	CERAMIC 1000P K 50V
C8552	403 069 1207	CERAMIC 1000P K 50V
C8601	403 118 0106	NP-ELECT 10U M 16V
C8602	403 189 2405	ELECT 10U M 16V
C8604	403 093 8104	OS-SOLID 4.7U M 10V
C8605	403 068 9402	CERAMIC 100P K 50V
CN871	613 105 6633	SOCKET,21P
OR	613 077 0905	SOCKET,21P
D8601	407 070 7104	ZENER DIODE GZS5.6X-BT
OR	407 053 6704	ZENER DIODE MTZ5.6B-T-77
D8651	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D8652	407 007 9904	DIODE GMA01-BT
OR	407 012 4406	DIODE 1SS133-T-77
D8761	407 070 7104	ZENER DIODE GZS5.6X-BT
OR	407 053 6704	ZENER DIODE MTZ5.6B-T-77
D8762	407 070 7104	ZENER DIODE GZS5.6X-BT
OR	407 053 6704	ZENER DIODE MTZ5.6B-T-77
D8763	407 070 7104	ZENER DIODE GZS5.6X-BT
OR	407 053 6704	ZENER DIODE MTZ5.6B-T-77
D8764	407 070 7104	ZENER DIODE GZS5.6X-BT
OR	407 053 6704	ZENER DIODE MTZ5.6B-T-77
IC851	409 182 9007	IC NJM2234L
IC861	409 120 3401	IC LA7221
OR	409 003 4501	IC BA7021
L8551	613 014 0739	COIL,INDUCTOR 1.0UHM
OR	613 014 4256	HF CHOKE 1.0UH K
L8761	613 017 0316	CORE
OR	613 130 3539	FERRITE CORE
L8762	613 017 0316	CORE
OR	613 130 3539	FERRITE CORE
L8763	613 017 0316	CORE
OR	613 130 3539	FERRITE CORE
L8764	613 017 0316	CORE
OR	613 130 3539	FERRITE CORE
Q8511	405 018 2501	TR 2SC3399-AC
OR	405 000 6104	TR DTC144ES-DCTP
Q8601	405 019 2005	TR 2SC536-E-SPA-AC
OR	405 019 2807	TR 2SC536-F-SPA-AC
OR	405 011 8401	TR 2SC1740S-DCTP-Q
OR	405 011 8500	TR 2SC1740S-DCTP-R
OR	405 093 0607	TR KSC2785-Y
Q8602	405 018 2501	TR 2SC3399-AC
OR	405 000 6104	TR DTC144ES-DCTP
Q8651	405 004 4007	TR 2SA608-E-SPA-AC
OR	405 004 4601	TR 2SA608-F-SPA-AC
OR	405 006 1707	TR 2SA933S-TP-Q
OR	405 006 1806	TR 2SA933S-T93-R
OR	405 093 0508	TR KSA1175-Y
Q8652	405 018 2501	TR 2SC3399-AC
OR	405 000 6104	TR DTC144ES-DCTP
R8501	401 017 2702	CARBON 27K JA 1/4W
R8503	401 017 9701	CARBON 30K JA 1/4W
R8507	401 017 1705	CARBON 2.7K JA 1/4W
R8508	401 017 1705	CARBON 2.7K JA 1/4W
R8511	401 018 4804	CARBON 33K JA 1/4W
R8512	401 012 5609	CARBON 1K JA 1/4W
R8531	401 015 1509	CARBON 180 JA 1/4W
R8601	401 012 6903	CARBON 10K JA 1/4W
R8602	401 020 1907	CARBON 4.7K JA 1/4W
R8603	401 022 6702	CARBON 75 JA 1/4W
R8604	401 012 5609	CARBON 1K JA 1/4W

LOCATION	PARTS NO.	DESCRIPTION			
R8606	401 012 5609	CARBON	1K	JA	1/4W
R8607	401 020 1907	CARBON	4.7K	JA	1/4W
R8651	401 012 6903	CARBON	10K	JA	1/4W
R8652	401 012 5609	CARBON	1K	JA	1/4W
R8653	401 021 2903	CARBON	5.6K	JA	1/4W
R8654	401 021 2903	CARBON	5.6K	JA	1/4W
R8655	401 016 4707	CARBON	22K	JA	1/4W
R8656	401 021 0602	CARBON	56	JA	1/4W

8. Mechanical Parts List

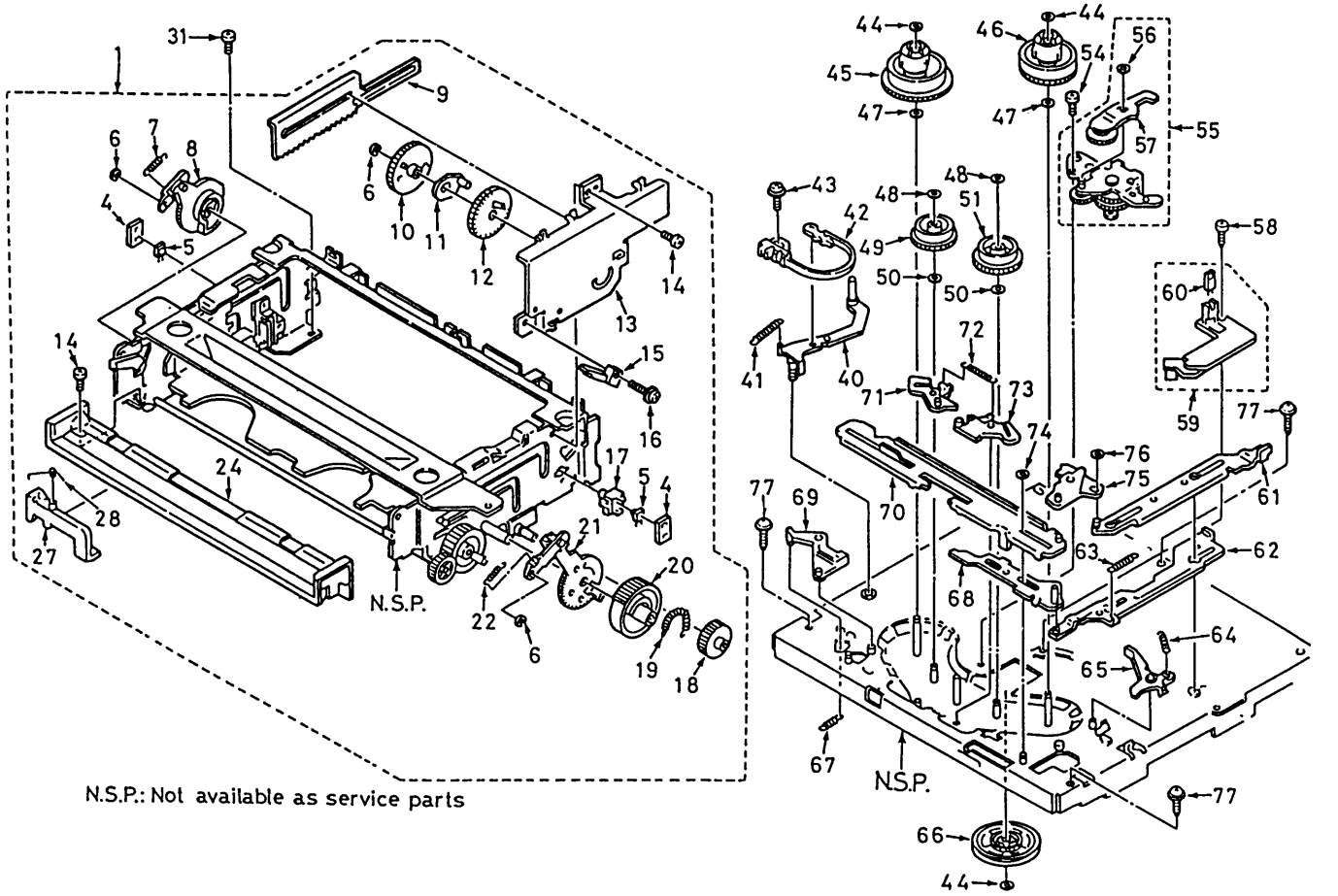
LOCATION	PARTS NO.	DESCRIPTION	LOCATION	PARTS NO.	DESCRIPTION
8-1. CABINET & CHASSIS PARTS					
1	411 137 0007	SCR L-TPG BIN 3X10	26	613 096 5653	IF PACK
2	613 124 3361	COMPL PCB,VP-1	27	613 094 8618	TUNER PACK
3	613 124 5709	COMPL PCB,PW-1	28	613 127 8035	COMPL PCB,TN-7
9	411 021 6603	SCR S-TPG BIN 3X8	32	613 126 5103	HOLDER(INCLUDED IN CP-2)
10	411 021 7907	SCR S-TPG BIN 4X12	33	613 121 7164	COMPL PCB,CP-2
12	613 122 0829	COMPL PCB,PW-3	34	613 121 0967	COVER,BOTTOM
13	613 122 0812	COMPL PCB,PW-2	35	613 121 1001	STAND,FELT
17	411 021 3701	SCR S-TPG BIN 3X10	36	613 129 6060	COMPL PCB,TM-1
18	613 123 1122	COVER,TOP	37	613 120 6113	COMPL PCB,TM-2
19	412 028 9406	SPECIAL SCREW	38	613 132 0512	DOOR,CASSETTE
20	613 121 3814	TERMINAL	39	613 118 1595	SPRING,DOOR CASSETTE
21	613 125 3926	COMPL PCB,TB-1	40	613 128 1424	ASSY,CABINET,FRONT
22	411 021 3800	SCR S-TPG BIN 3X10	41	613 048 2884	LOCK
24	613 129 4707	COMPL PCB,CP-A	42	613 128 1493	DOOR,FRONT
25	613 110 3665	MODULATOR,RF	43	613 129 6121	COMPL PCB,TM-6
OR	613 120 5642	MODULATOR,RF			

N.S.P:Not available as service parts



8-2. MECHANISM PARTS 1

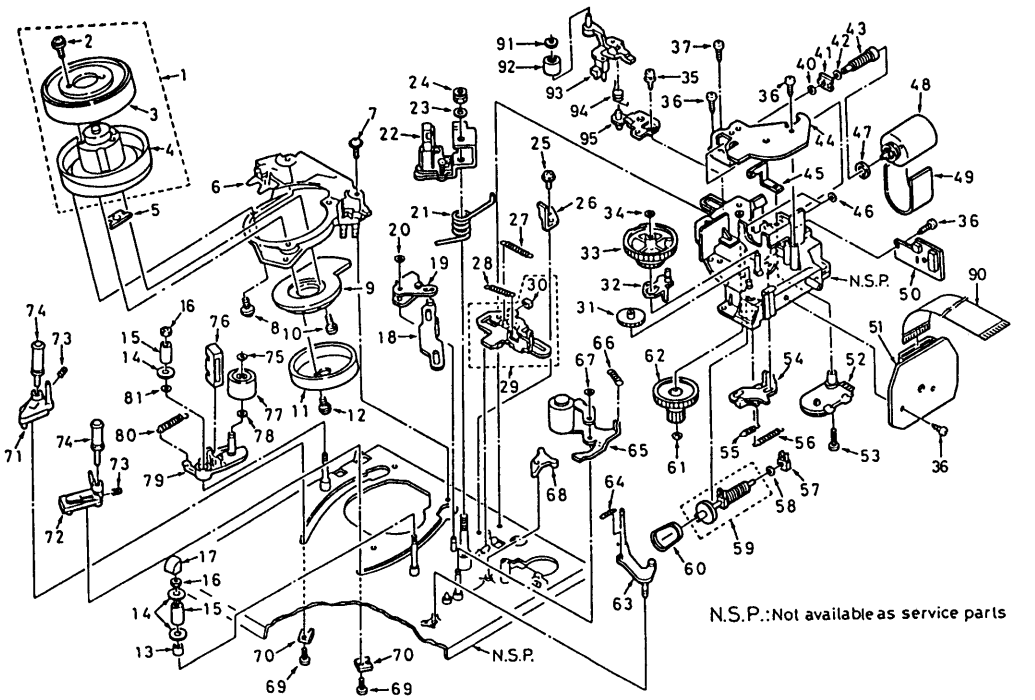
LOCATION	PARTS NO.	DESCRIPTION
1	613 125 4855	COMPL,CASSETTE MECHA
4	613 022 0585	LID
5	407 098 3201	PHOTO COUPLE PN150SAN
6	411 015 9801	RING E 2.3
7	613 022 1643	SPRING,LINK L
8	613 022 0073	ASSY,GEAR,LEVER L
9	613 022 2695	RACK
10	613 022 2633	GEAR,LOCK
11	613 021 9916	ASSY,LEVER,PINION
12	613 022 2626	GEAR,PINION
13	613 021 9657	ASSY,BRACKET,GEAR
14	411 027 1305	SCR S-TPG BIN 2.6×4
15	613 006 4479	SPECIAL SWITCH
OR	613 095 0949	SPECIAL SWITCH
16	411 106 9208	SCR PAN+SW+W 2×9
17	613 022 0943	HOLDER,TRANSISTOR
18	613 022 2619	GEAR,IDLER
19	613 022 1667	SPRING,GEAR MAIN
20	613 022 2596	GEAR,MAIN
21	613 022 0097	ASSY,GEAR,LEVER R
22	613 022 1674	SPRING,LINK R
24	613 022 4064	BOARD,UNDER
27	613 124 5006	LEVER,SAFETY SWITCH
28	613 125 6149	SPRING,SAFETY SWITCH
31	411 001 8702	SCR BIN 3×6
40	613 100 0391	ASSY,LEVER,TENSION
41	613 085 7996	SPRING,LEVER TENSION
42	613 021 9701	ASSY,HOLDER,BAND
43	411 144 2803	SCR PAN+SW+W 2.6×6
OR	411 036 2805	SCR PAN+SW+W 2.6×6
44	411 109 1605	WASHER Y 2.6×6×0.25
45	613 022 0127	ASSY,REEL,SUPPLY
46	613 022 0110	ASSY,REEL,TAKE UP
47	412 021 5306	SPECIAL WASHER 3.1×6×0.3
OR	412 015 8900	SPECIAL WASHER 3.1×6×0.4
OR	412 015 8504	SPECIAL WASHER 3.1×6×0.5
48	411 109 1506	WASHER Y 2.1×6×0.25
OR	411 109 1407	WASHER Y 2.1×5×0.25
49	613 126 6148	GEAR,REEL SUPPLY
50	412 026 7305	SPECIAL WASHER 2.6×6×0.25
51	613 126 6155	GEAR,REEL TAKE UP
54	412 042 4302	SPECIAL SCREW 2.6×4
55	613 085 7101	COMPL,IDLER,CLUTCH
56	411 120 1301	WASHER Y 2.1×4×0.25
57	613 022 0134	ASSY,IDLER
58	411 021 3107	SCR S-TPG BIN 2.6×8
59	613 120 9053	COMPL,PCB,MC-4
60	407 016 7205	LED LN59
61	613 021 9985	ASSY,SLIDE,ACT PLATE
62	613 021 9992	ASSY,SLIDE,C BRAKE
63	613 022 1612	SPRING,RETURN SLIDE
64	613 022 1506	SPRING,SUB T
65	613 098 0106	ASSY,BRAKE,SUB T
66	613 077 3647	PULLEY,REEL
67	613 022 1490	SPRING,SUB SUPPLY
68	613 022 2374	SLIDE,ACT BRAKE
69	613 084 8871	BRAKE,SUB SUPPLY
70	613 022 0004	ASSY,SLIDE,M PLATE
71	613 080 9216	ASSY,BRAKE,SUPPLY
72	613 086 2914	SPRING,MAIN BRAKE
73	613 080 9209	ASSY,BRAKE,TAKE UP
74	411 109 3005	WASHER Y 2.6×5×0.5
75	613 022 2015	LEVER,CONT PLATE
76	412 015 9501	SPECIAL WASHER
77	411 021 7907	SCR S-TPG BIN 4×12



N.S.P.: Not available as service parts

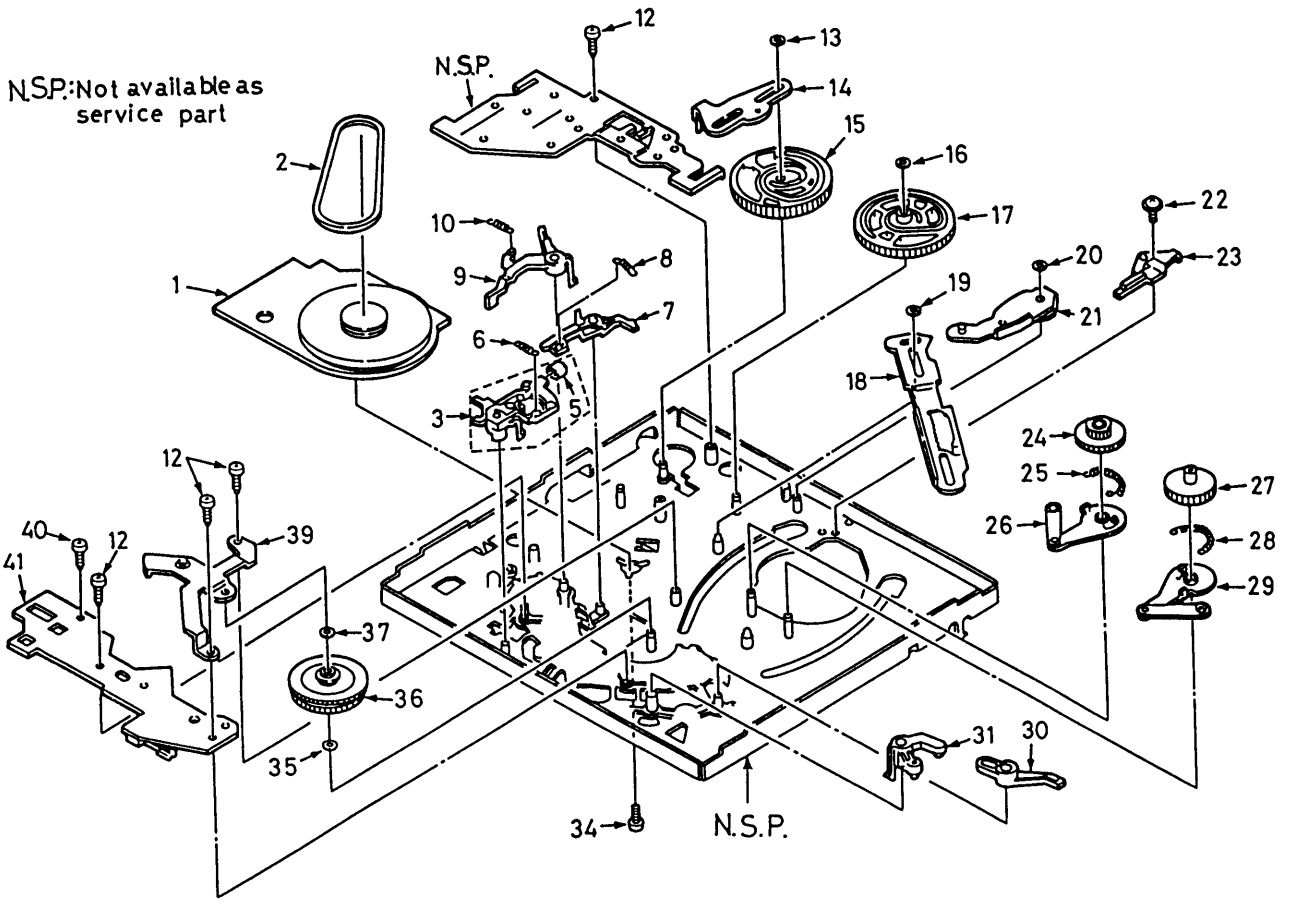
8-3. MECHANISM PARTS 2

LOCATION	PARTS NO.	DESCRIPTION
1	613 096 2812	COMPL,CYLINDER,2N4P-R
OR	613 096 5059	COMPL,CYLINDER,2N4P-R
2	411 038 1608	SCR PAN+W 3×8
3	613 096 2829	ASSY,CYLINDER,UPR 2N4P-R
OR	613 096 5073	ASSY,CYLINDER,UPR 2N4P-R
4	613 022 0325	ASSY,CYLINDER,LWR 4
OR	613 078 8566	ASSY,CYLINDER,LWR 4
5	613 097 2170	SPACER,MOTOR,0.3T
6	613 088 9072	BASE,CYLINDER
7	411 047 7509	SCR PAN+FLG 3×6
8	411 047 5000	SCR PAN+FLG 2.6×8
9	613 085 7279	STATOR,MOTOR CYLINDER
10	411 044 9209	SCR PAN+SW 2.3×8
OR	411 044 8301	SCR PAN+SW 2.3×10
11	613 022 4019	ROTOR,MOTOR CYLINDER
12	411 044 9001	SCR PAN+SW 2.3×6
13	613 123 4802	SLEEVE
14	613 053 3227	SPECIAL WASHER
15	613 123 4970	TAPE GUIDE
16	412 026 2607	SPECIAL NUT (M3)
17	613 123 9418	CAP
18	613 021 9961	ASSY,SLIDE,ACT PINCH
19	613 021 9800	ASSY,LEVER,CAM PINCH
20	411 109 2008	WASHER Y 3.1×8×0.5
21	613 022 1797	SPRING,ACE HEAD
22	613 021 9640	COMPL,BRACKET,AC HEAD
23	613 110 1692	SLEEVE,AC HEAD
24	412 015 8207	SPECIAL NUT (M5)
25	411 120 0007	SCR PAN+SW+W 2.6×5
26	613 120 3631	BRACKET,STOPPER
27	613 022 1575	SPRING,LINK LOCK
28	613 022 1582	SPRING,SLIDE BRAKE
29	613 094 9233	ASSY,SLIDE,CAM
30	613 022 2725	DAMPER
31	613 022 2534	GEAR,FRONT LOAD
32	613 094 1206	ASSY,LEVER,FRONT
33	613 077 3586	GEAR,HELICAL FRONT
34	613 027 0504	WASHER 4.1×6.5×0.5
35	411 046 8002	SCR PAN+SW+W 2.6×6
36	411 023 2801	SCR S-TPG PAN 2.6×6
37	411 023 3303	SCR S-TPG PAN 2.6×8
OR	411 021 3107	SCR S-TPG BIN 2.6×8
40	613 053 2381	SPECIAL WASHER
41	613 077 3227	HOLDER,WORM
42	613 027 0382	WASHER
43	613 078 8320	ASSY,WORM,FRONT
44	613 117 0599	BRACKET,HOLDER
45	613 093 9159	PLATE,NUT
46	613 093 8374	DAMPER,MOTOR
47	613 077 3616	DAMPER,WORM
48	613 121 9960	ASSY,LOADING MOTOR
49	613 092 9945	DAMPER,MOTOR
50	613 120 9503	COMPL,PCB,MC-3
51	613 120 9510	COMPL,PCB,MC-2
52	613 110 0374	ROTARY SWITCH
53	411 126 5303	SCR PAN 2.6×13
54	613 092 9921	ASSY,SLIDE,FRONT
55	613 092 5985	SPRING,LEVER LOAD
56	613 092 5992	SPRING,LEVER ACT
57	613 092 5886	HOLDER,WORM
58	613 027 0627	WASHER 2.1×6×0.5
59	613 092 9938	ASSY,WORM,LOAD
60	613 022 2985	BELT,LOADING
61	412 033 4106	WASHER SLIT 2.6×5×0.5
62	613 077 3579	GEAR,HELICAL
63	613 102 9293	ASSY,LEVER,REV GUIDE
64	613 022 1568	SPRING,REVIEW LEVER
65	613 022 0158	COMPL,PINCH ROLLER
66	613 022 1483	SPRING,PINCH ROLLER
67	411 109 2107	WASHER Y 3.6×6×0.5
68	613 078 8160	COMPL,LEVER,ACT BRAKE
69	411 031 1209	SCR BIN 2.6×5
70	613 022 1919	PLATE,GUIDE
71	613 021 9725	ASSY,BASE,ROLLER S
72	613 021 9732	ASSY,BASE,ROLLER T
73	411 063 0904	SCR SET HEX-SCT 2×3
74	613 022 0233	ASSY,GUIDE,ROLLER
75	411 109 2602	WASHER Y 1.5×4×0.25
76	613 022 4224	HEAD,FULL ERASE
77	613 022 2817	IMPEDANCE ROLLER
78	412 032 5807	SPECIAL WASHER 2.1×5×0.13
79	613 093 8305	ASSY,LEVER,FE HEAD
80	613 022 1698	SPRING,ERASE HEAD
81	411 109 1704	WASHER Y 6.4×10×0.25
90	613 127 8271	FLEXIBLE FLAT CABLE 24
91	411 109 1803	WASHER Y 2.6×6×0.5
92	613 119 8562	ASSY,ROLLER,CLEANER
93	613 119 8548	ASSY,LEVER,CLEANER
94	613 119 8593	SPRING
95	613 119 8524	ASSY,BRACKET,CLEANER

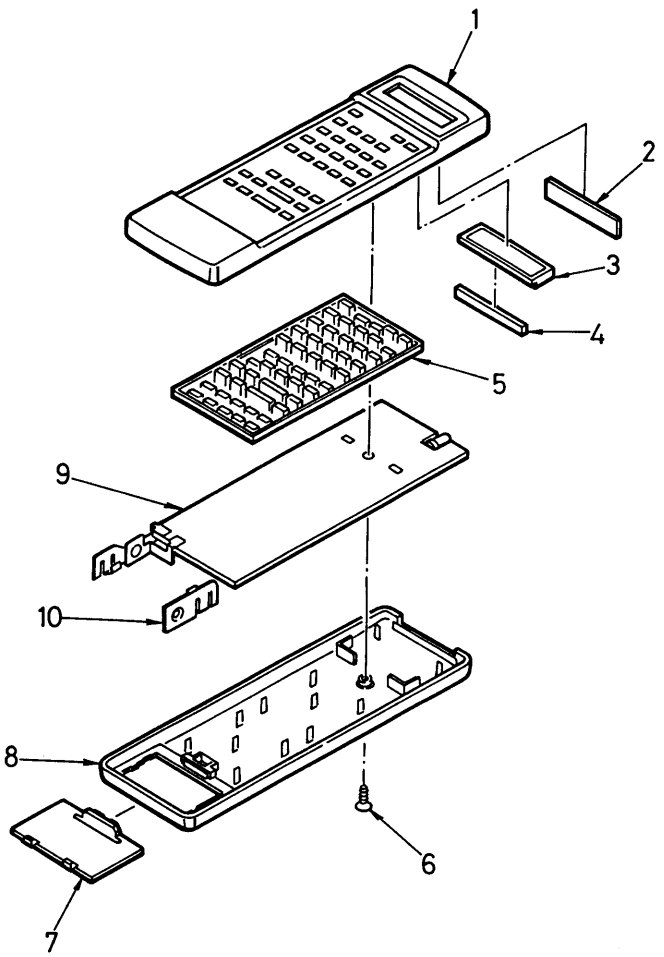


8-4. MECHANISM PARTS 3

LOCATION	PARTS NO.	DESCRIPTION
1	613 022 4491	MOTOR,CAPSTAN
2	613 022 2978	BELT,REEL DRIVE
3	613 021 9848	ASSY,LEVER,CLUTCH
5	613 079 1023	DAMPER,LEVER CLUTCH
6	613 022 1520	SPRING,LEVER CLUTCH
7	613 082 3434	LEVER,CHANGE CLUTCH
8	613 022 1711	SPRING,CHANGE CLUTCH
9	613 081 7518	ASSY,BRAKE CAPSTAN
10	613 098 2285	SPRING,CAPSTAN
12	411 021 3107	SCR S-TPG BIN 2.6×8
13	411 109 2008	WASHER Y 3.1×8×0.5
14	613 021 9978	ASSY,SLIDE,CAM PLATE
15	613 022 2701	CAM,MODE
16	411 109 1902	WASHER Y 3.1×6×0.5
17	613 120 1576	CAM,MAIN
18	613 022 2664	RACK,LOAD
19	411 109 1803	WASHER Y 2.6×6×0.5
20	411 109 2107	WASHER Y 3.6×6×0.5
OR	411 109 2206	WASHER Y 3.6×8×0.5
21	613 021 9794	ASSY,LEVER,CAM LOAD
22	411 047 6809	SCR PAN+FLG 3×4
23	613 021 9763	ASSY,EARTH,CYLINDER
24	613 090 6380	GEAR,LOAD TAKE UP
25	613 022 1551	SPRING,GEAR LOAD T
26	613 021 9879	ASSY,LEVER,LOAD T
27	613 090 6373	GEAR,LOAD SUPPLY
28	613 022 1704	SPRING,GEAR LOAD S
29	613 021 9862	ASSY,LEVER,LOAD S
30	613 022 2039	LEVER,RETURN TENSION
31	613 091 3104	ASSY,LEVER CONTROL
34	411 040 2303	SCR PAN 2.6×5
35	412 015 8603	SPECIAL WASHER 3.1×6×0.25
36	613 102 0900	ASSY,GEAR FRICTION
37	411 109 1605	WASHER Y 2.6×6×0.25
39	613 079 8121	BRACKET,PULLEY
40	411 100 0300	SCR S-TPG BIN 2.6×5
41	613 120 9060	COMPL,PCB,MC-1
R1	401 026 0607	CARBON 270 JA 1/6W
OR	401 017 0708	CARBON 270 JA 1/4W
R2	401 024 6700	CARBON 100 JA 1/6W
OR	401 012 4404	CARBON 100 JA 1/4W
D1	407 094 1300	PHOTO COUPLE SPI-315-04-C
OR	407 043 0101	PHOTO DIODE ON2170-R
SW1	613 022 4545	SPECIAL SWITCH,EP

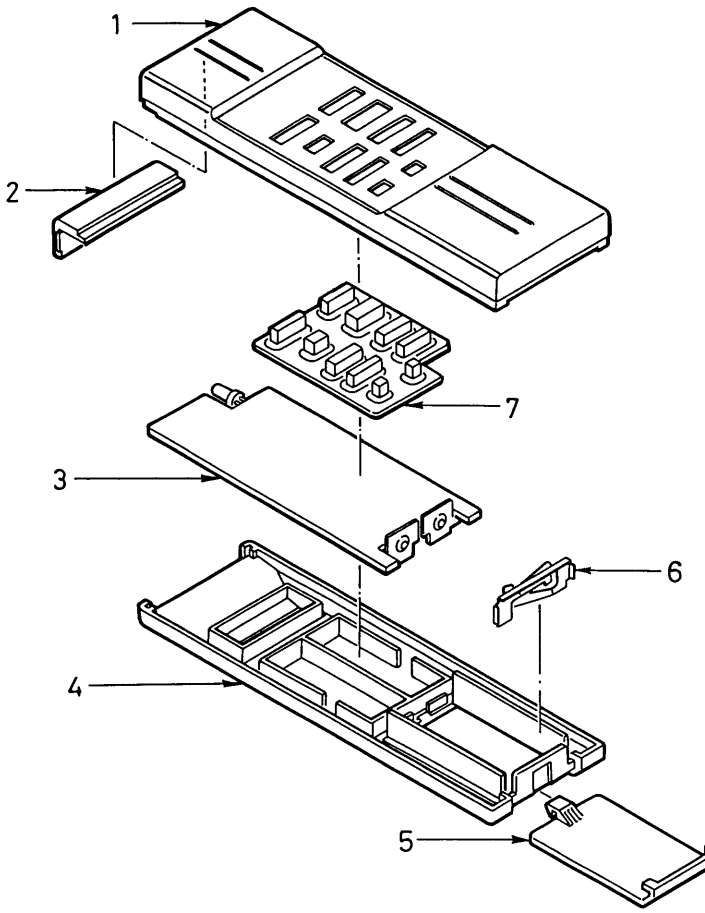


LOCATION	PARTS NO.	DESCRIPTION
8-5. REMOCON,VC152LX		
COMPL.NO.	613 128 7525	
1	613 128 7280	ASSY,CABINET,TOP
2	613 122 5305	WINDOW
3	613 123 1979	LCD
4	613 123 1931	CONNECTOR
5	613 128 7396	BUTTON
6	411 101 7308	SCR S-TPG FLT 2.6X10
7	613 122 5220	LID,BATTERY
8	613 122 5213	CABINET,BOTTOM
9	613 122 4940	COMPL PCB,RM-1
10	613 123 1962	TERMINAL,BATTERY



LOCATION	PARTS NO.	DESCRIPTION
8-6. COMPL PCB,RM-1		
COMPL.NO.	613 122 4940	
	613 123 1948	TERMINAL,BATTERY,+
	613 123 1955	TERMINAL,BATTERY,-
	613 123 1900	SPACER
C1	403 068 0409	CERAMIC 0.1U Z 25V
C2	403 152 9707	ELECT 22U M 6.3V
C3	403 009 9300	CERAMIC 100P K 50V
C4	403 009 9300	CERAMIC 100P K 50V
C5	403 068 0409	CERAMIC 0.1U Z 25V
C6	403 068 0409	CERAMIC 0.1U Z 25V
C7	403 153 0802	ELECT 220U M 4V
IC1	409 245 3003	IC LC5872-S-1275
OR	409 246 8205	IC LC5872-S-1300
J1	401 035 4108	MT-GLAZE 0.000 ZA 1/8W
LED1	407 040 3709	LED SLR-932A
Q1	405 021 2406	TR 2SD1048-X7-TB
OR	405 021 2505	TR 2SD1048-X8-TB
R1	401 035 4603	MT-GLAZE 100 JA 1/8W
R2	401 169 5200	MT-GLAZE 2.2 JA 1/4W
R3	401 035 4603	MT-GLAZE 100 JA 1/8W
R4	401 037 5806	MT-GLAZE 1M JA 1/10W
R5	401 039 0601	MT-GLAZE 820K JA 1/10W
X1	613 123 2020	RESONATOR,CERAMIC1.216MHZ

LOCATION	PARTS NO.	DESCRIPTION
8-7. REMOCON		
COMPL.NO.	613 132 3544	
1	613 132 6095	ASSY,CABINET,FRONT
2	613 125 8204	WINDOW
3	613 132 5999	COMPL PCB,RM-1
4	613 125 8174	CABINET,BOTTOM
5	613 125 8198	LID,BATTERY
6	613 125 8259	TERMINAL,BATTERY
7	613 127 8721	BUTTON



LOCATION	PARTS NO.	DESCRIPTION
8-8. COMPL PCB,RM-1		
COMPL.NO.	613 132 5999	
	613 125 8266	TERMINAL,BATTERY,+
	613 125 8273	TERMINAL,BATTERY,-
C1	403 039 2104	ELECT 47U M 6.3V
C2	403 068 0409	CERAMIC 0.1U Z 25V
C3	403 009 9300	CERAMIC 100P K 50V
C4	403 009 9300	CERAMIC 100P K 50V
D1	407 077 2508	DIODE 1SS272
IC	410 122 2101	IC UPD6600GS-535
LED1	407 040 3709	LED SLR-932A
OR	407 126 0400	LED LD271E7317
R1	401 036 0307	MT-GLAZE 2.2 JA 1/8W
TR	405 021 2406	TR 2SD1048-X7
OR	405 021 2505	TR 2SD1048-X8
X1	613 016 6913	CERAMIC RESONATOR
OR	613 016 6920	CERAMIC RESONATOR

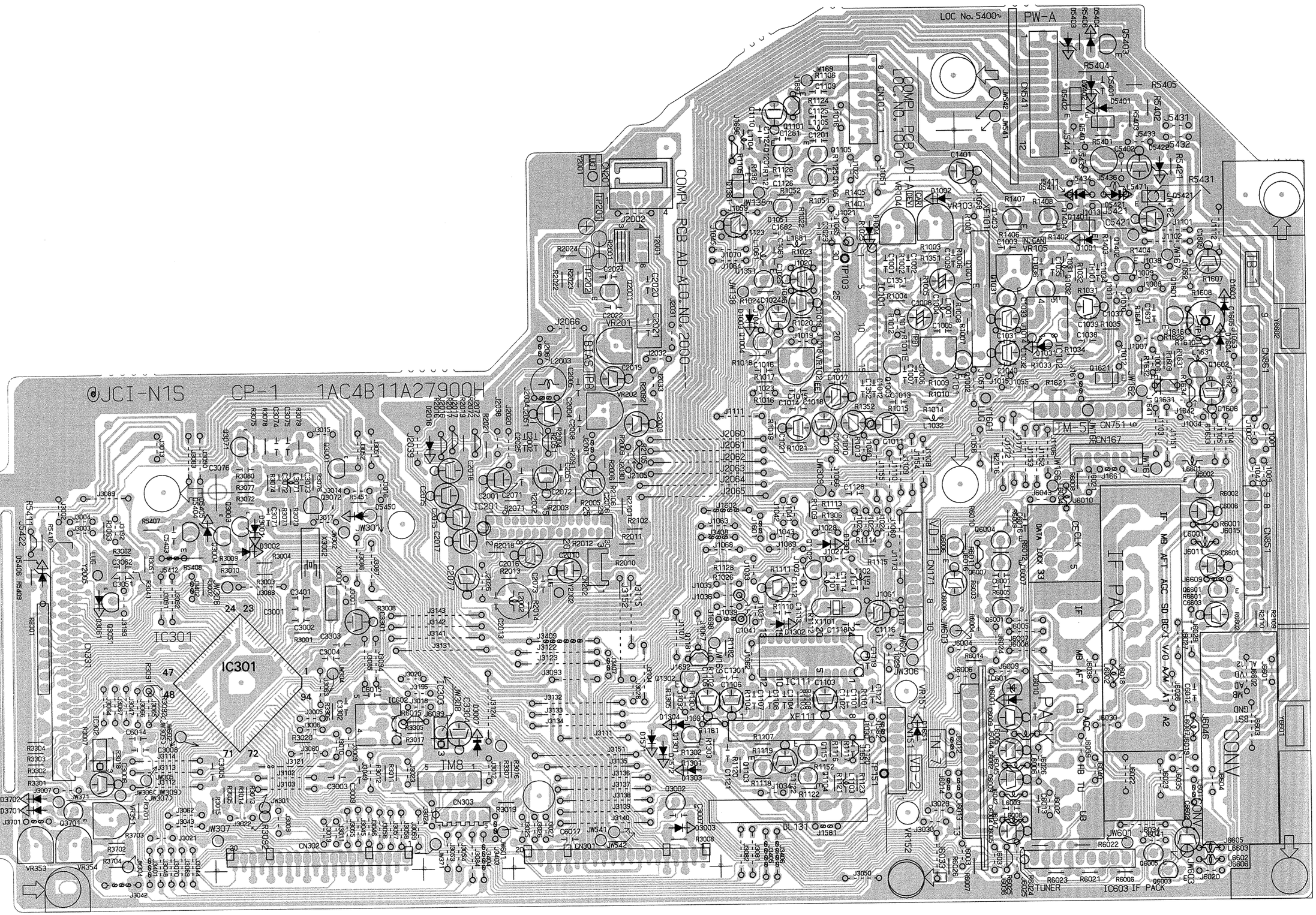
8-9. ACCESSORIES

	613 128 7525	REMOCON,VC152LX
	613 132 3544	REMOCON
	613 128 1806	INSTRUCTION MANUAL
	613 127 7625	INSTRUCTION MANUAL,VPT
	613 096 6773	CABLE,ANT
OR	613 011 7359	CABLE,ANT
	613 123 0781	CORD,POWER
	613 133 1907	HOLDER

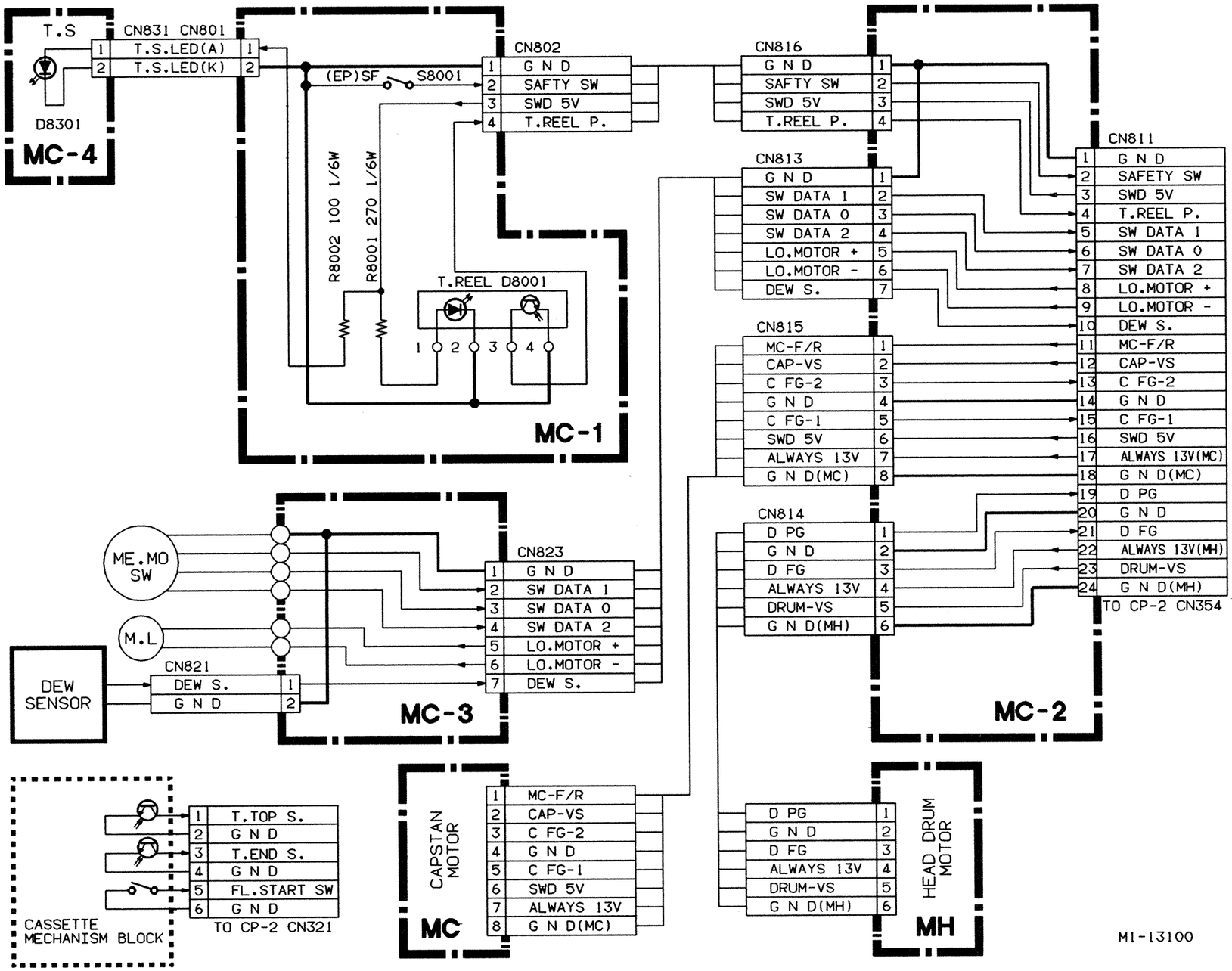
8-10. PACKING MATERIALS

613 128 1783	CORR CASE,INNER
613 124 9288	CUSHION,INNER LEFT
613 124 9295	CUSHION,INNER RIGHT
613 099 1768	POLYE COVER,INNER-K

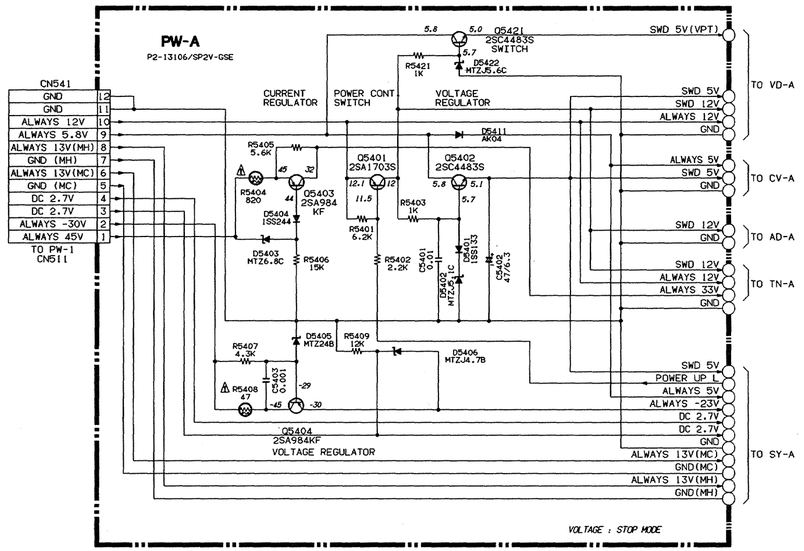
9-1. CP-1 P.C.B.


JCI-N1S CP-1 1AC4B11A27900H
LOC No. 5400~
PW-A
COMPL PCB AD-ALL NO.2000-
LOC.NO. PCB VD 1000-
IC301
IC111
IC603 IF PACK
TUNER
IF PACK
TU PACK
CONV
TM-5
TM-7
VD-1
VD-2
CN751
CN167
CN861
CN851
CN303
CN302
CN301
CN333
CN541
CN101
CN171
CN151
TB-1
TP103
TM8
DL131
XE111
X1101
X3001
X3002
VR101
VR102
VR103
VR104
VR105
VR201
VR202
VR353
VR354
VR151
VR152
IC201
IC302
IC303
IC602
IF AGC SD BCL V/O AM A1 A2 MB AFT LB AGC HB TU LIB
DATA LOCK CCLK
GND BST

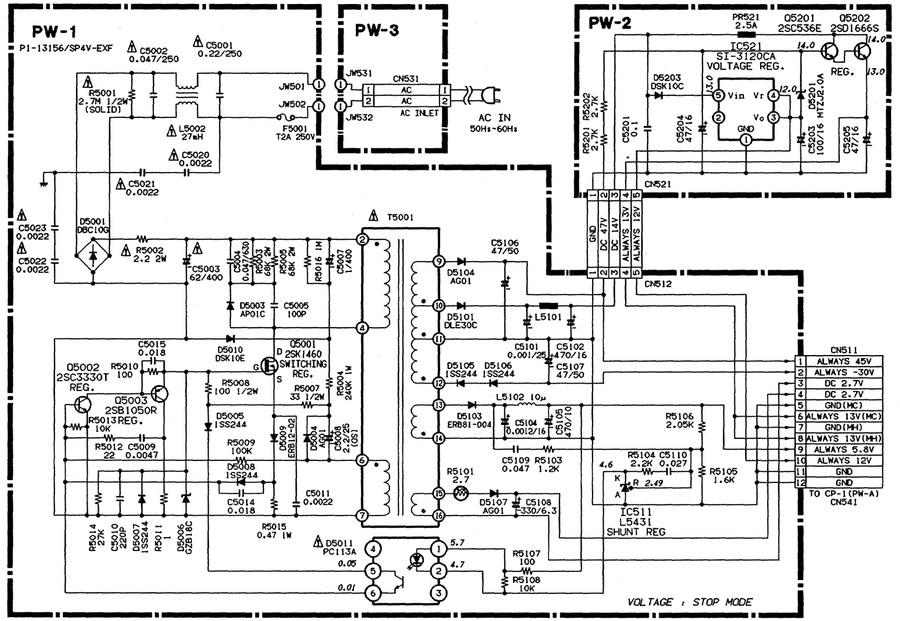
9-2. MECHANISM CONNECTION CIRCUIT DIAGRAM



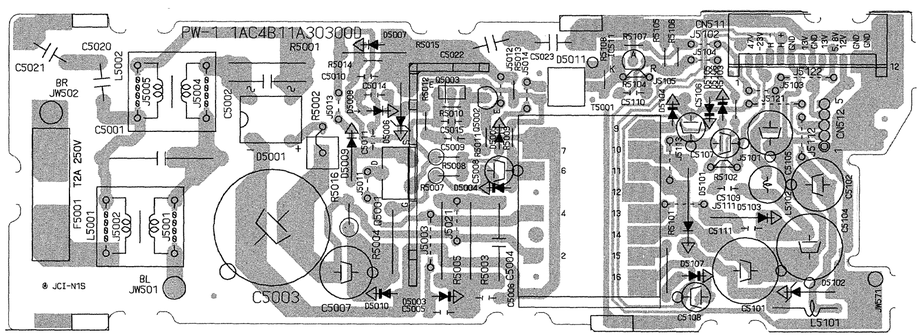
9-3. CP-1 BOARD (PW-A) POWER SUPPLY CIRCUIT DIAGRAM



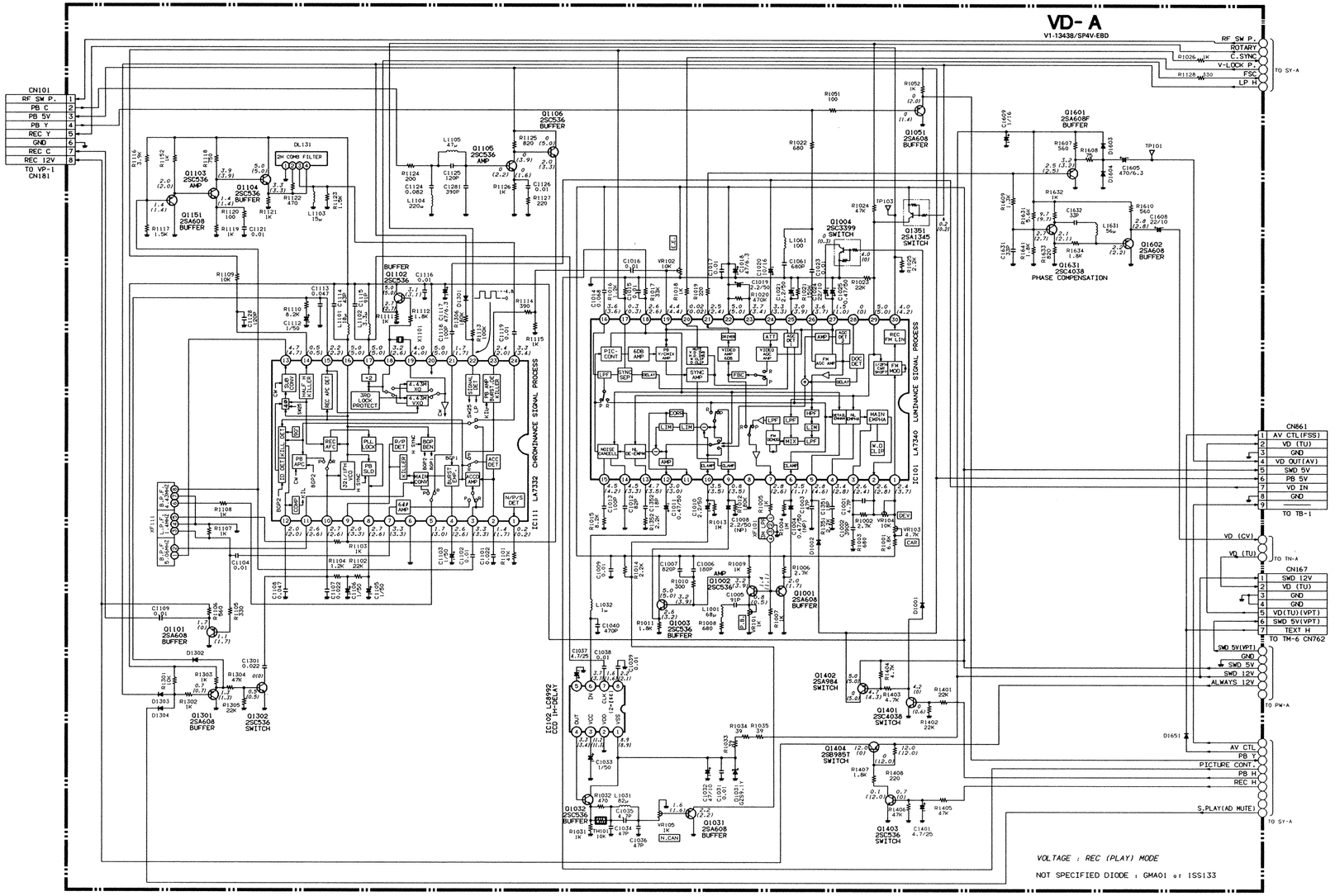
9-4. PW-1, 2, 3 BOARD POWER SUPPLY CIRCUIT DIAGRAM



9-5. PW-1 P.C.B.

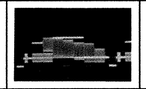
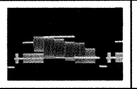
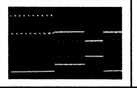
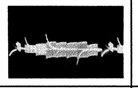
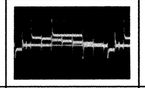
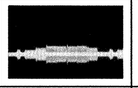
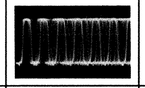
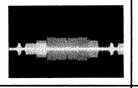
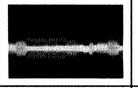
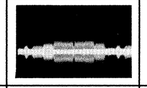
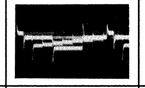
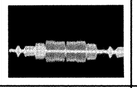
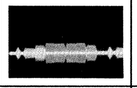
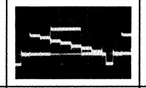
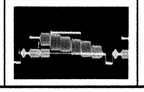


9-8. CP-1 BOARD (VD-A) VIDEO CIRCUIT DIAGRAM

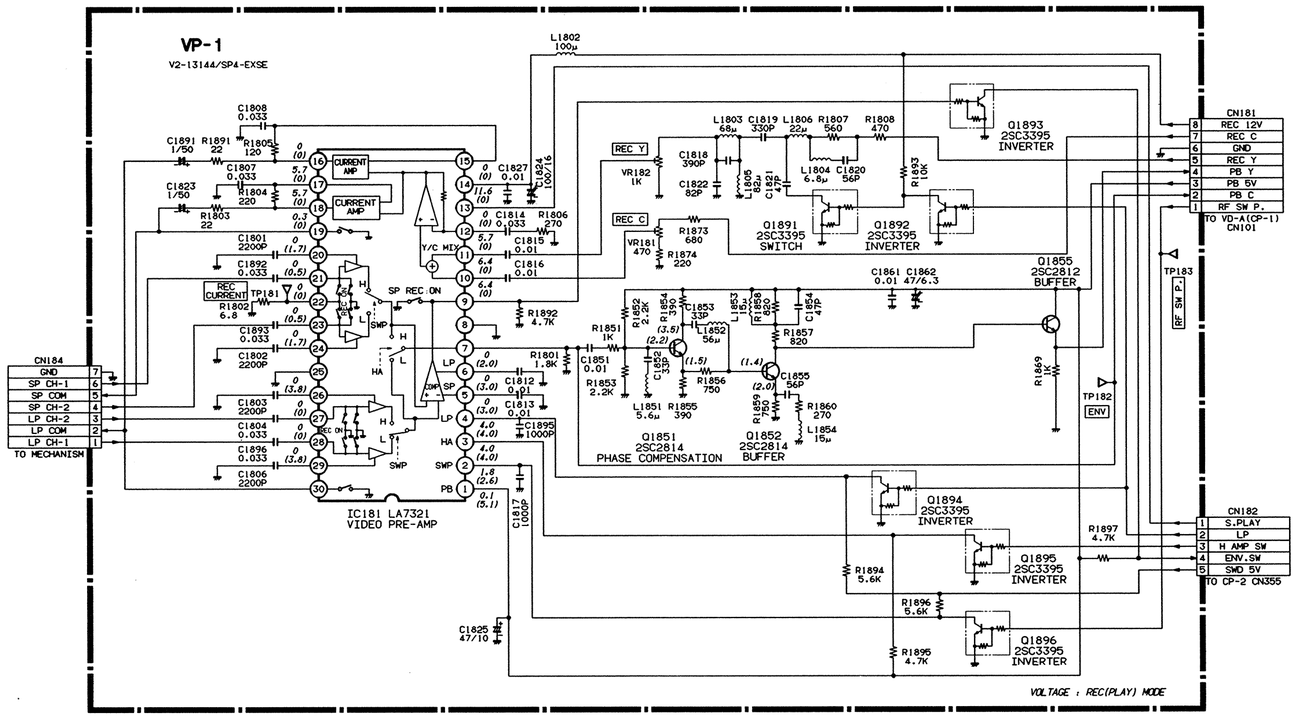


9-9. WAVEFORM OF VIDEO

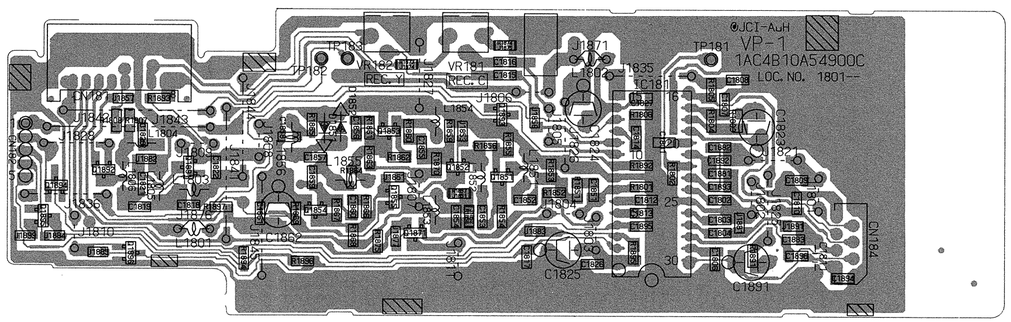
WF-V-SP

TEST LOCATION	WAVEFORM	MODE/LEVEL	TEST LOCATION	WAVEFORM	MODE/LEVEL
IC101 Pin 24		REC, EE 1 Vp-p	IC101 Pin 21		REC, EE 2 Vp-p
IC101 Pin 7		REC, EE 1 Vp-p	IC101 (UPPER) Pin 21 (LOWER) Pin 20		STILL (UPPER) 2 Vp-p (LOWER) 5 Vp-p
IC101 Pin 6		REC, EE 0.45 Vp-p	IC111 Pin 21		REC, EE 1 Vp-p
IC101 Pin 2		REC, EE 1.3 Vp-p	IC111 Pin 3		REC, EE 0.14 Vp-p
IC101 Pin 30		REC, EE 1.5 Vp-p	IC111 Pin 9		REC, EE 0.8Vp-p
IC101 Pin 26		PB 0.8 Vp-p	Q1105 Base		PB 0.1 Vp-p
IC101 Pin 7		PB 2.0 Vp-p	Q1108 Emitter		PB 1.2 Vp-p
Q1002 Base		PB 0.5 Vp-p	IC111 Pin 7		PB 0.5 Vp-p
IC101 Pin 9		PB 0.6 Vp-p	IC111 Pin 5		PB 1.2 Vp-p
IC101 Pins 10/12		PB 0.5 Vp-p	IC111 Pin 24		PB 0.22 Vp-p
IC101 Pin 21		PB 2 Vp-p	IC111 Pin 23		PB 0.6 Vp-p

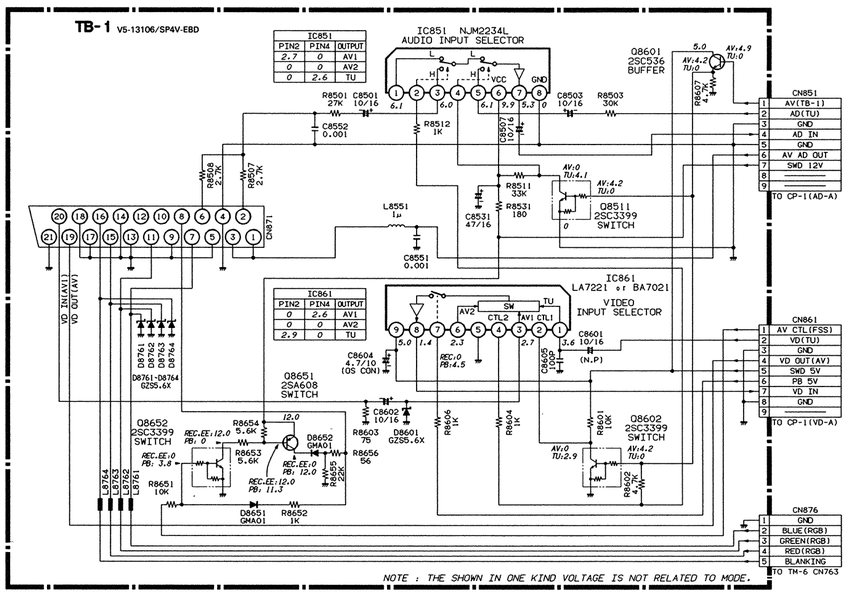
9-10. VP-1 BOARD VIDEO PRE-AMP CIRCUIT DIAGRAM



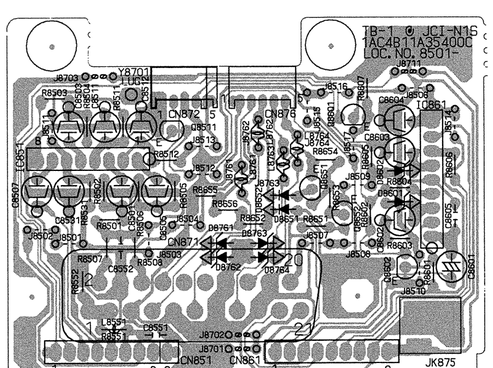
9-11. VP-1 P.C.B.



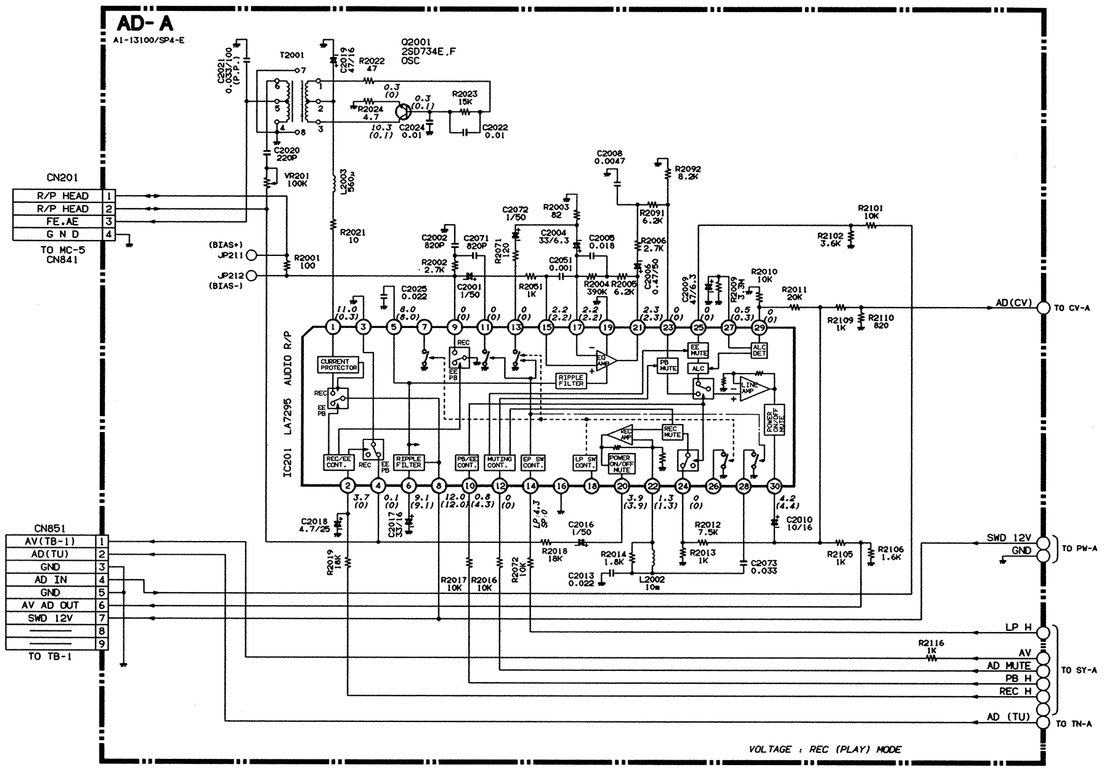
9-12. TB-1 BOARD TERMINAL & INPUT SELECT CIRCUIT DIAGRAM



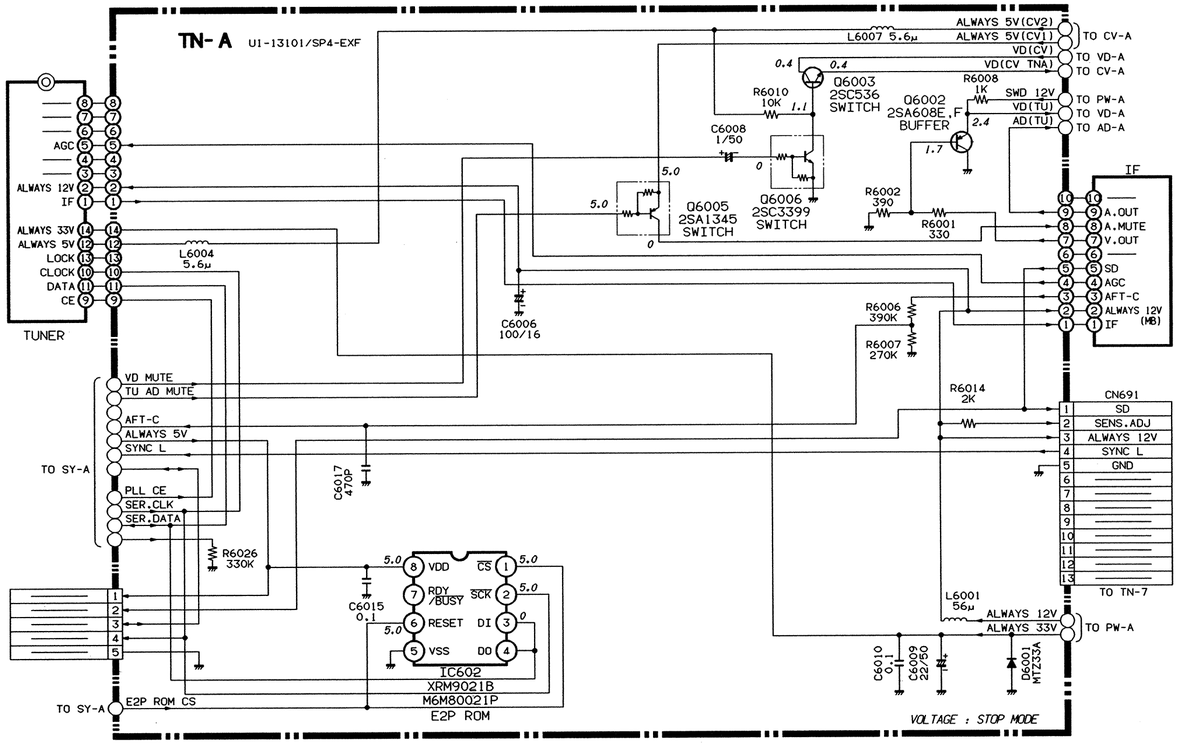
9-13. TB-1 P.C.B.



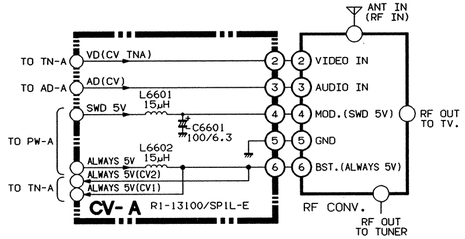
9-14. CP-1 BOARD (AD-1) AUDIO CIRCUIT DIAGRAM



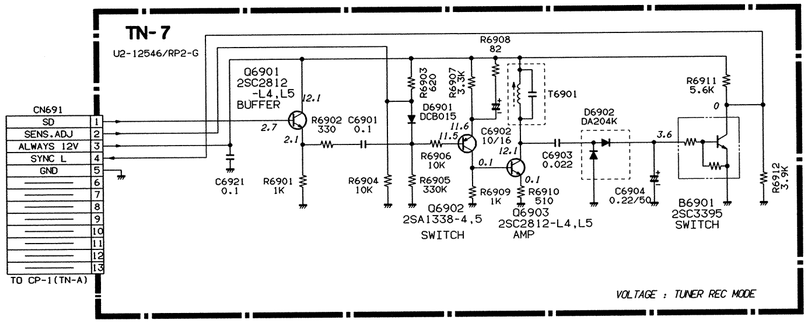
9-15. CP-1 BOARD (TN-A) TUNER IF CONNECTION CIRCUIT DIAGRAM



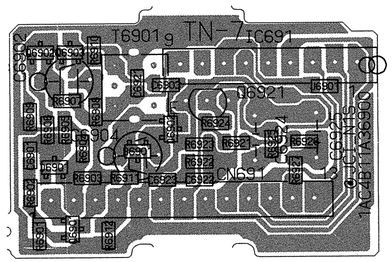
9-16. CP-1 BOARD (CV-A) RF CONVERTER CONNECTION CIRCUIT DIAGRAM



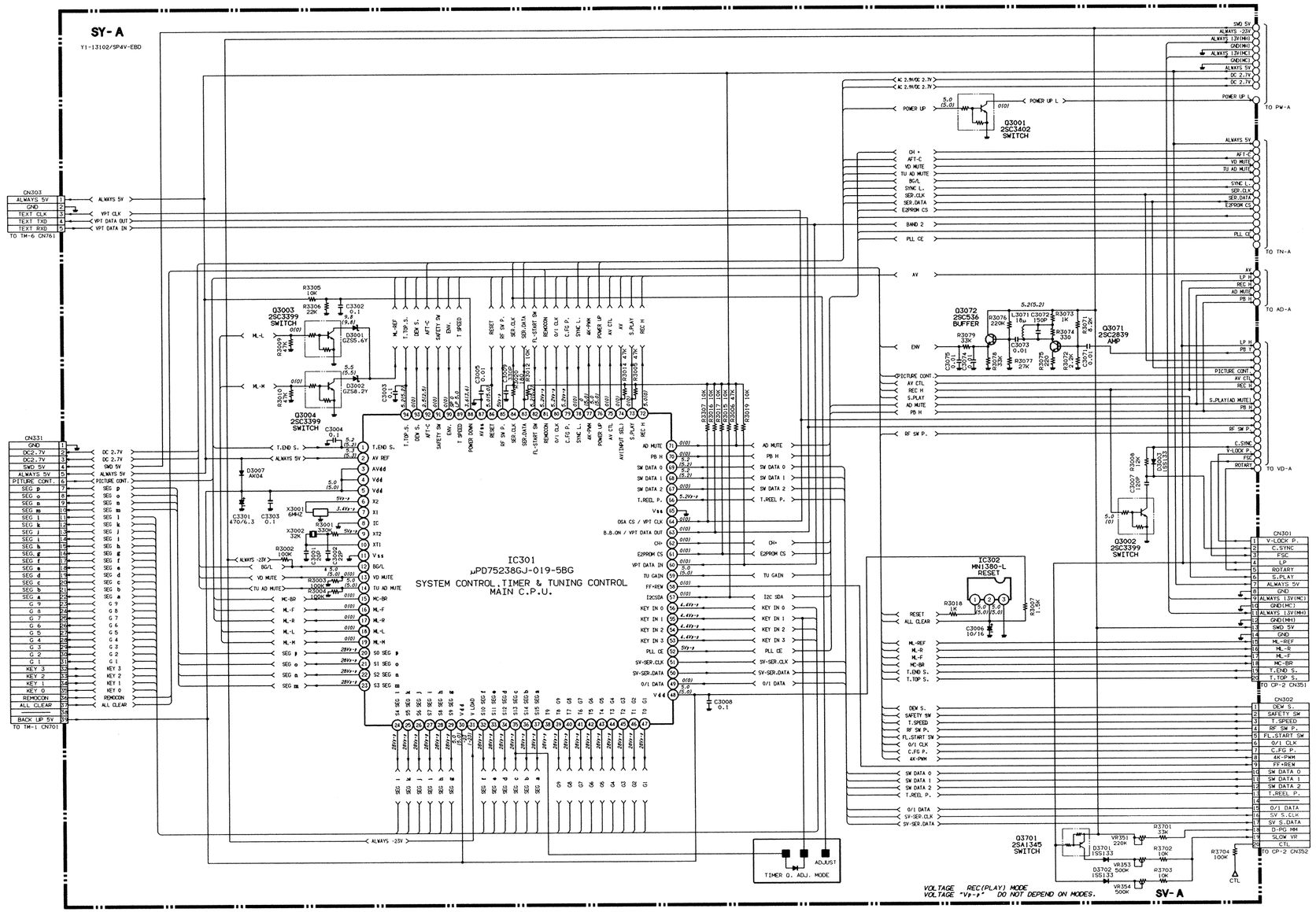
9-17. TN-7 BOARD SYNC DET. CIRCUIT DIAGRAM



9-18. TN-7 P.C.B.



9-19. CP-1 BOARD (SY-A, SV-A) SYSTEM CONTROL CIRCUIT DIAGRAM

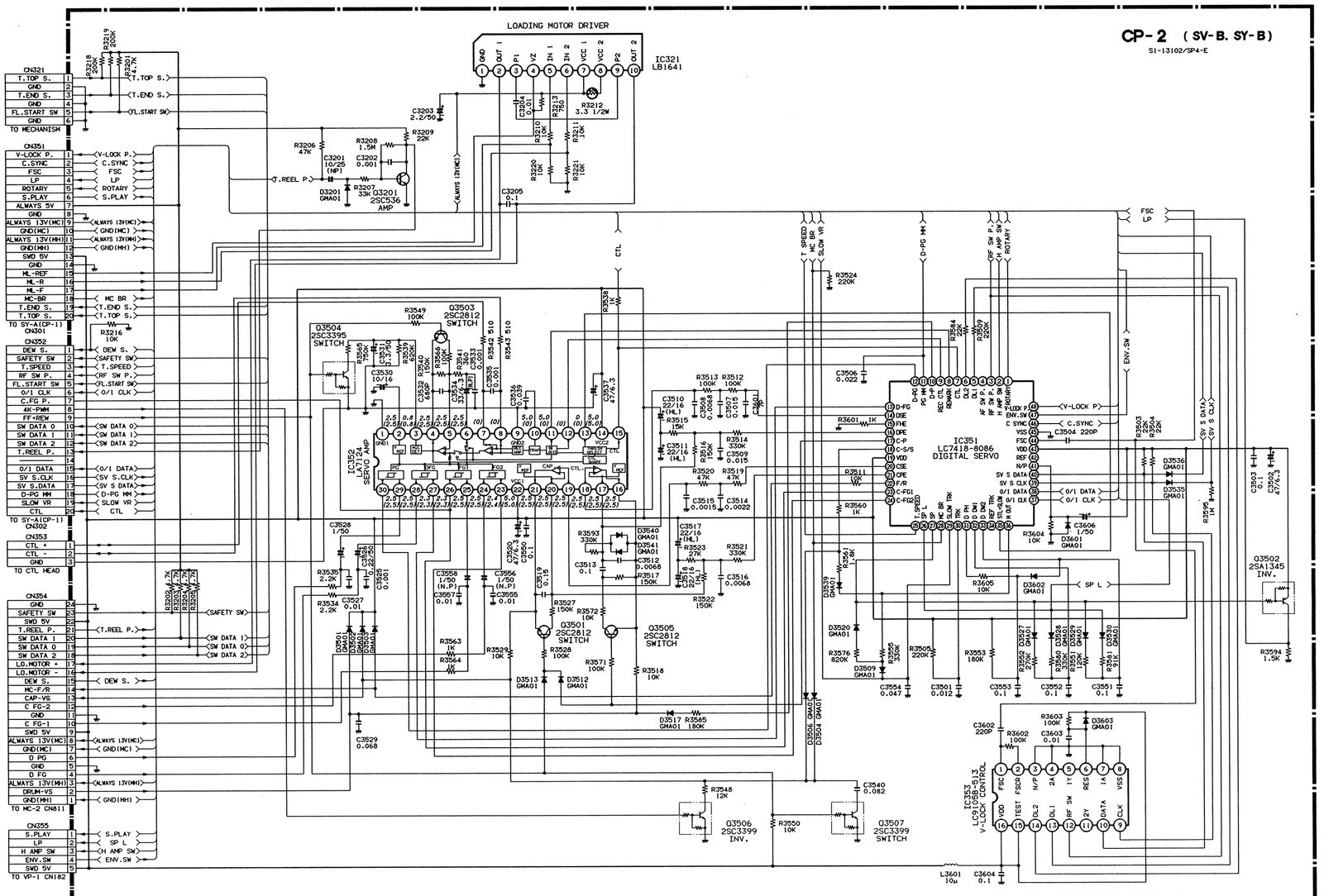


9-20. WAVEFORM OF SERVO

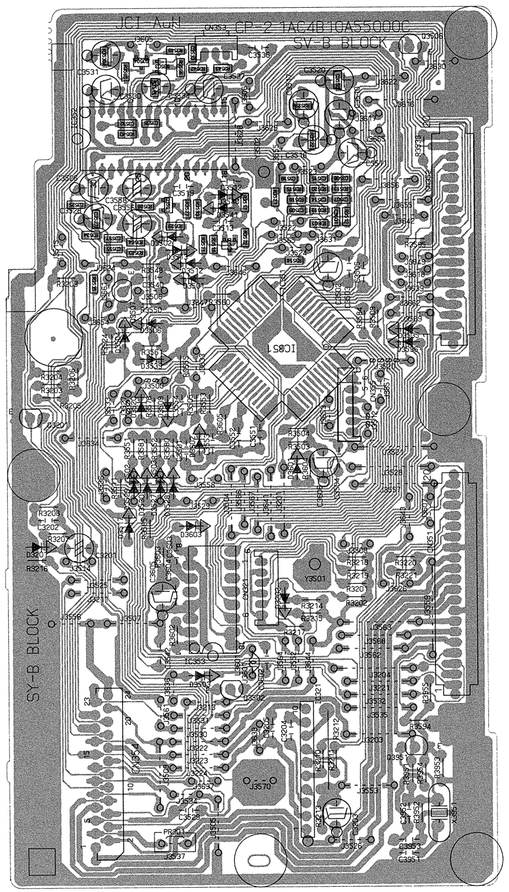
IC351 (LC7418)		⑳	4.8 V, 17.053 kHz	⑦	REC, 2.0 V, 3.0 V, 24 msce, 16 msce
①, ③, ④	5 V, 20 msec, 20 msec	㉓, ㉔	3.8 V, 0.66 msec = 1514 Hz	⑧	REC, 3.0 V, 2.0 V, 24 msce, 16 msce
⑤, ⑥	P.B., 0.44 msec, 3 V, 20 msec	㉚	3 msec, 3 V, 40 msec	⑫	5 V, 24 msec, 16 msec
⑦	3.7 V, 24 msec, 16 msec	㊲	35 μsec, 4.8 V, 40 msec	⑮	3.7 V, 24 msec, 16 msec
⑨	5 V, 24 msec, 16 msec	㊷	4.8 V, 20 msec, 20 msec	㉓, ㉖	3.8 V, 0.66 msec = 1514 Hz
⑪	2.0 msec, 3 V, 20 msec	㊹	0.7 Vp-p, 4.43 MHz	㉔, ㉕	50 mV p-p, 0.66 msec
⑫	3.8 V, 40 msec	㊻	3.7 V, T = 20 msec	㉗	3.8 V, 1.33 msec = 750 Hz
⑬	3.8 V, 1.33 msec = 750 Hz	IC352 (LA7124)		㉘	20 mV p-p, 1.33 msec
⑭	4.8 V, 8.593 kHz	③	P.B., 40 mV, 40 msec	㉙	200 mV p-p, 40 msec
⑯, ㉑	4.8 V, 4.296 kHz	④	P.B., 1.3 Vp-p, 40 msec	㉚	3.8 V, 40 msec

WF-S3

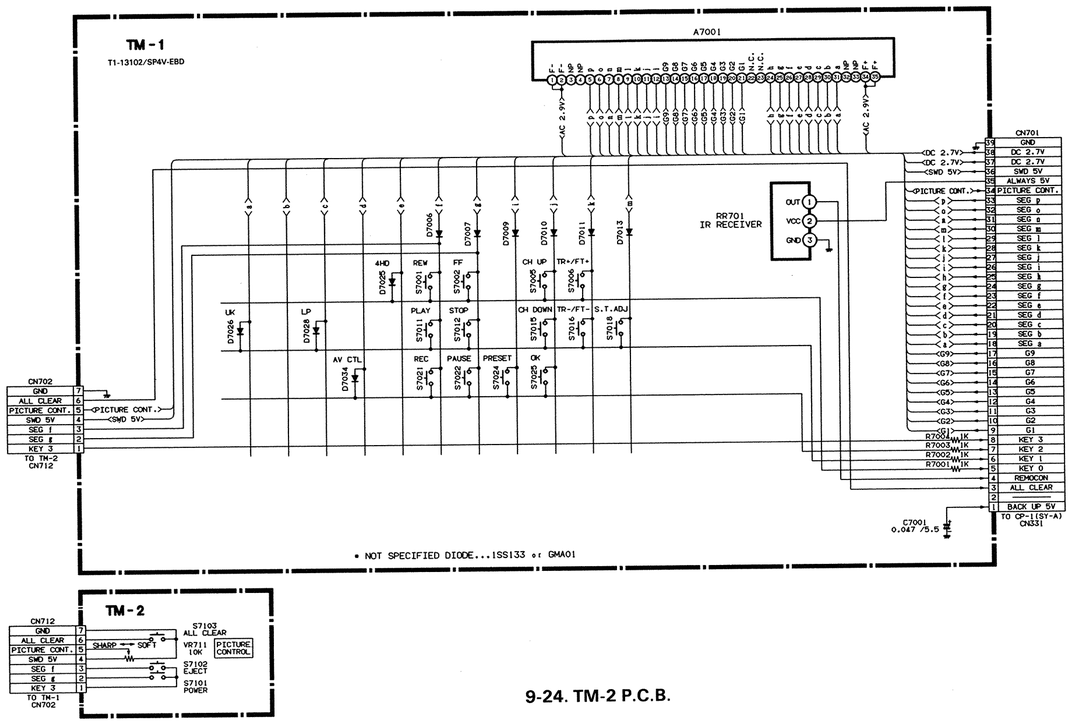
9-21. CP-2 BOARD (SY-B, SV-B) SERVO CIRCUIT DIAGRAM



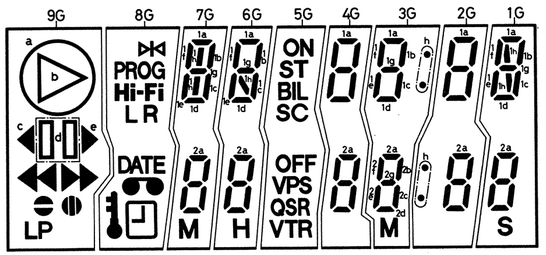
9-22. CP-2 P.C.B.



9-23. TM-1 BOARD OPERATION KEY & DISPLAY (FLD) CIRCUIT DIAGRAM



A7001 DISPLAY GRID ASSIGNMENT

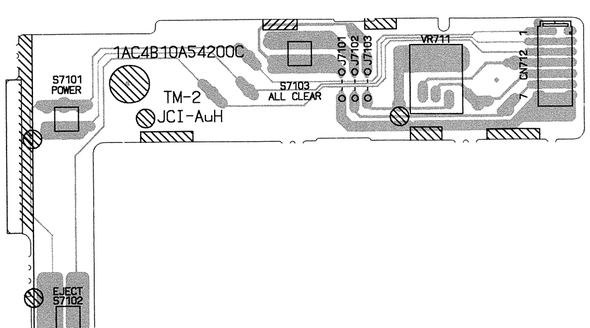


A7001 DISPLAY TABLE OF ANODE CONNECTION

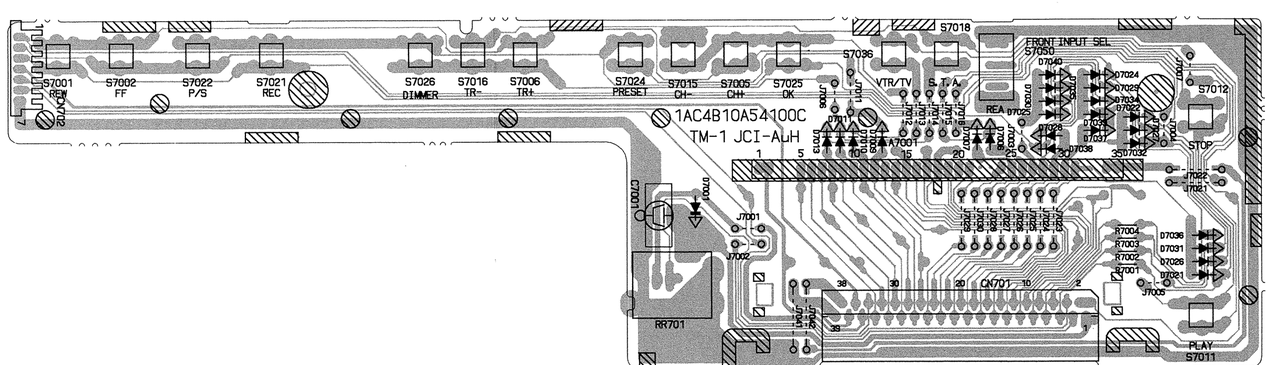
	9G	8G	7G	6G	5G	4G	3G	2G	1G
a	○	◘	1a	1a	**ON**	1a	1a	1a	1a
b	▷	⏭	1b	1b	**ST**	1b	1b	1b	1b
c	◁	**PROG**	1c	1c	**BIL**	1c	1c	1c	1c
d	▯▯	**Hi-Fi**	1d	1d	**SC**	1d	1d	1d	1d
e	▶	**L**	1e	1e	–	1e	1e	1e	1e
f	–	**R**	1f	1f	–	1f	1f	1f	1f
g	–	–	1g	1g	–	1g	1g	1g	1g
h	–	–	1h	1h	–	–	•(UPPER)	•(LOWER)	1h
i	◀◀	**DATE**	2a	2a	**OFF**	2a	2a	2a	2a
j	▶▶	●●	2b	2b	**VPS**	2b	2b	2b	2b
k	●	🌡	2c	2c	**QSR**	2c	2c	2c	2c
l	◐	🕒	2d	2d	**VTR**	2d	2d	2d	2d
m	**LP**	–	2e	2e	–	2e	2e	2e	2e
n	**EP**	–	2f	2f	–	2f	2f	2f	2f
o	–	–	2g	2g	–	2g	2g	2g	2g
p	–	–	**M**	**H**	–	**H**	**M**	**M**	**S**

9G/QP

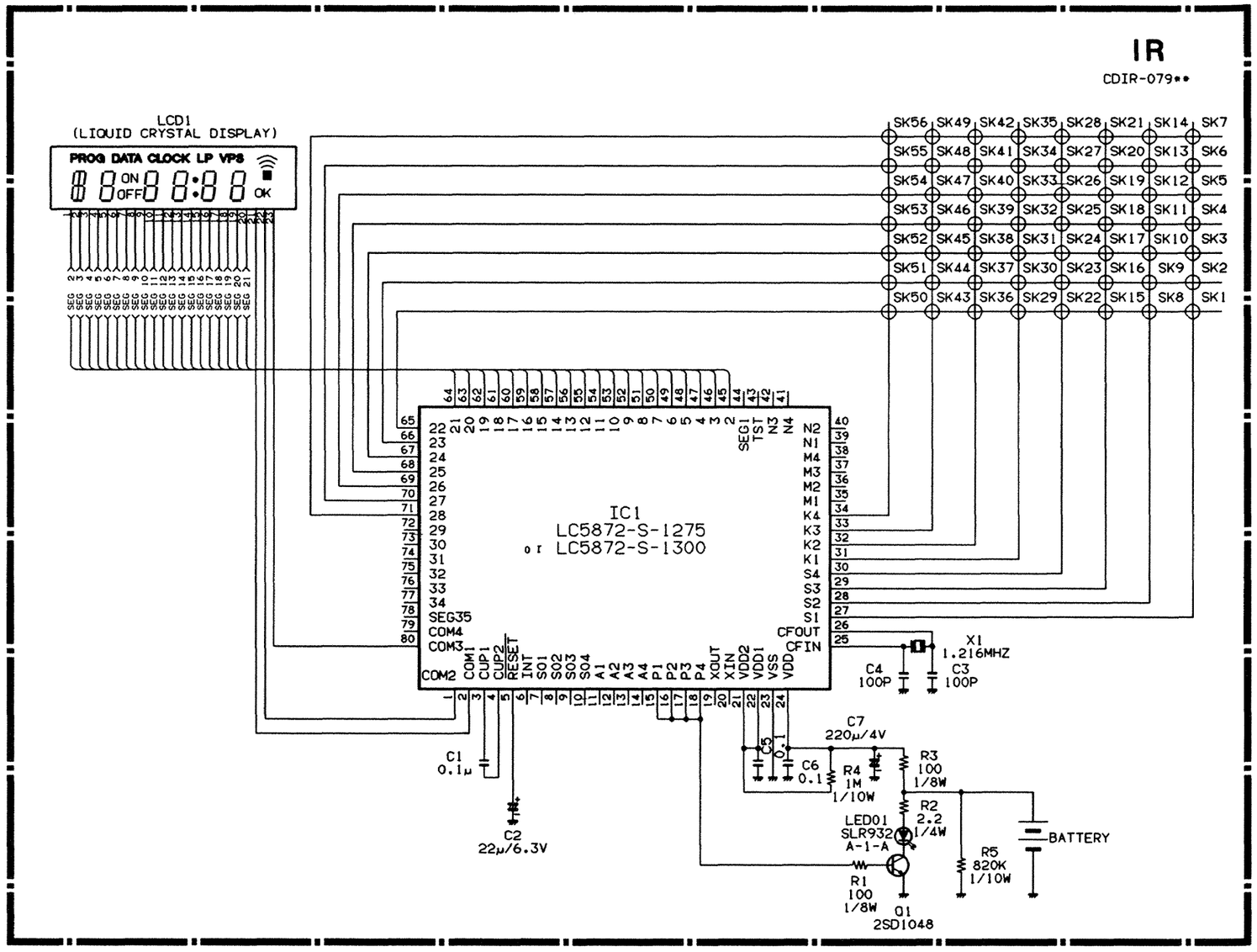
9-24. TM-2 P.C.B.



9-25. TM-1 P.C.B.



9-26. IR REMOTE CONTROL CIRCUIT DIAGRAM



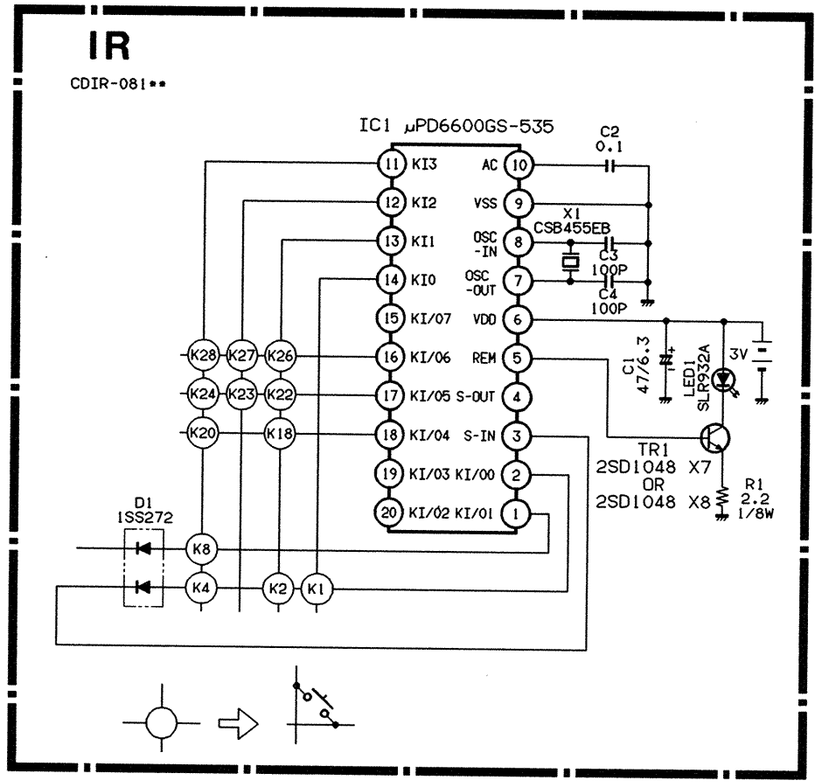
AVAILABLE KEY FUNCTION OF REMOTE CONTROL UNIT

KEY NO.	FUNCTION	
1	POWER	USE
2	SUBTITLE	
3	VPS	
4	SP/LP	USE
5	TRANS	USE
6	● REC	USE
7	A.DUB	
8	CLOCK	USE
9	1	USE
10	2	USE
11	3	USE
12	VCR/TV	
13	● REC	USE
14	INSERT	
15	PROG	USE
16	4	USE
17	5	USE
18	6	USE
19	▲ CH+	USE
20	■ STOP	USE
21	MODE-	USE
22	CHECK	USE
23	7	USE
24	8	USE
25	9	USE
26	▼ CH-	USE
27	■ STOP	USE
28	MODE+	USE

KEY NO.	FUNCTION		
29		MENU	USE
30	CL		USE
31	O/AV		USE
32	OK		USE
33	MONITOR	TV	USE
34	▮▮ PAUSE/STILL		USE
35	SLOW		USE
36		VPT	USE
37	RED		USE
38	GREEN		USE
39	YELLOW		USE
40	BLUE		USE
41	ERASE		
42	A.SEL		
43		TEXT	USE
44	SPECIAL	REVEAL	USE
45	INDEX	EXP	USE
46	RESET	TIME	USE
47	MEMORY	HALT	USE
48	MARK		
49	C.DISP		
50	ATR		USE
51	◀◀ REW/		USE
52 / 53	PLAY ▶		USE
54	/FF ▶▶		USE
55	SC		

IR-07951

9-27. IR REMOTE CONTROL CIRCUIT DIAGRAM

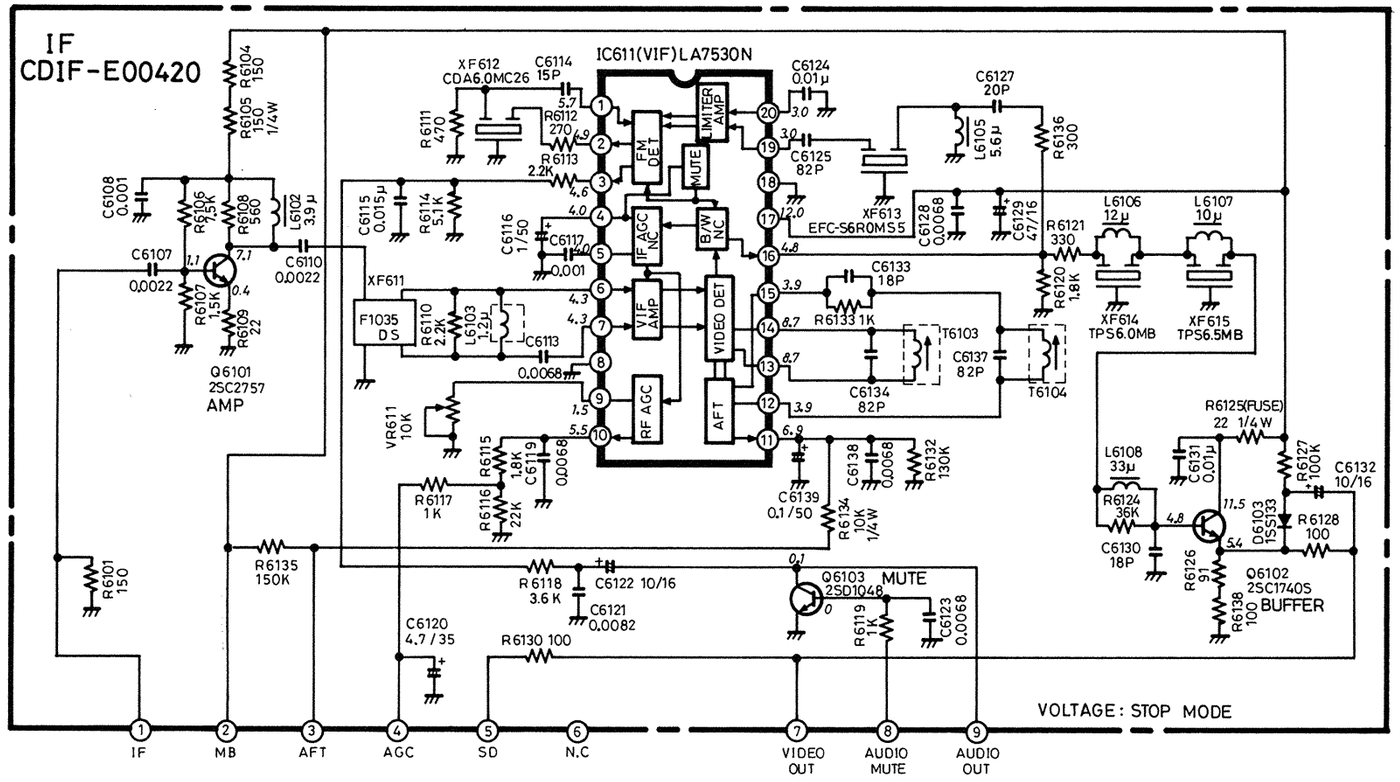


AVAILABLE KEY FUNCTION OF REMOTE CONTROL UNIT

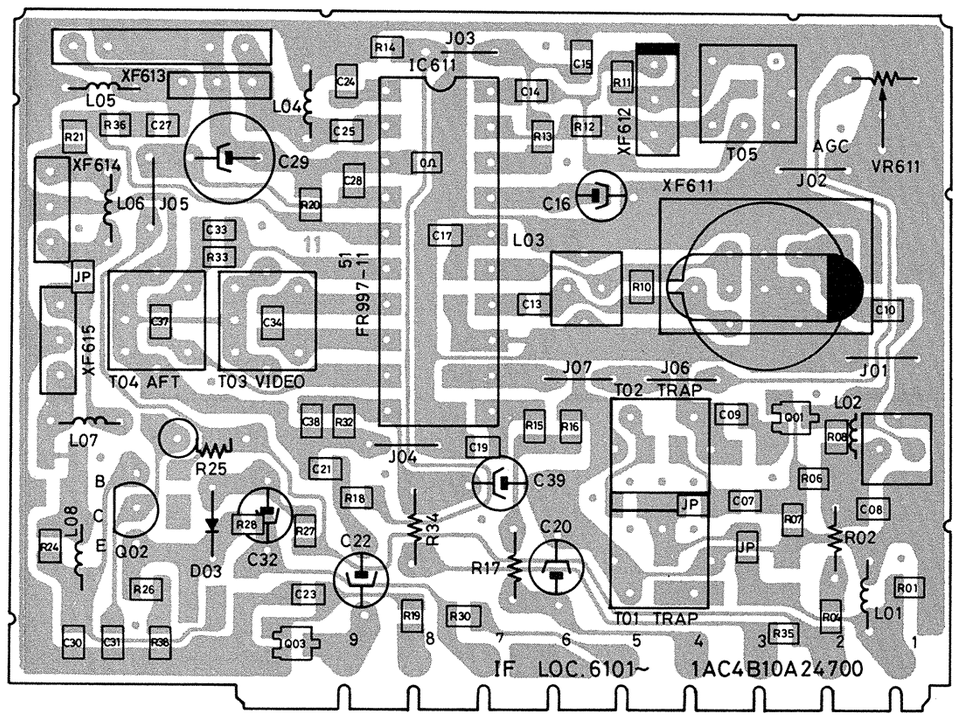
KEY NO	FUNCTION	
K1	POWER	USE
K2	VTR/TV	
K4	SP/LP	USE
K8		
K18	CHANNEL ▼	USE
K20	CHANNEL ▲	USE
K22	◀◀ REW	USE
K23	PLAY ▶	USE
K24	FF ▶▶	USE
K26	● REC	USE
K27	■ STOP	USE
K28	▮▮ PAUSE/STILL	USE

IR-08102

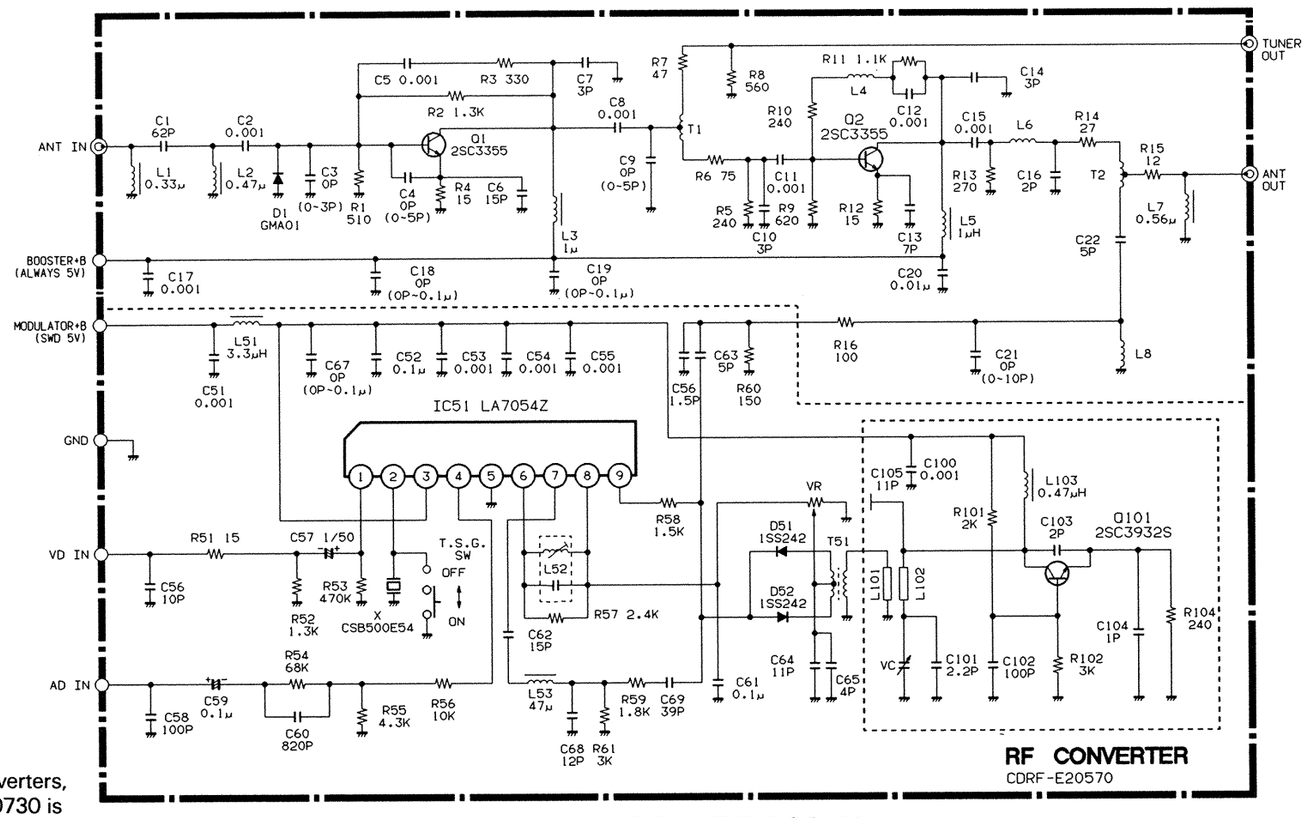
9-28. IF CIRCUIT DIAGRAM



9-29. IF P.C.B.

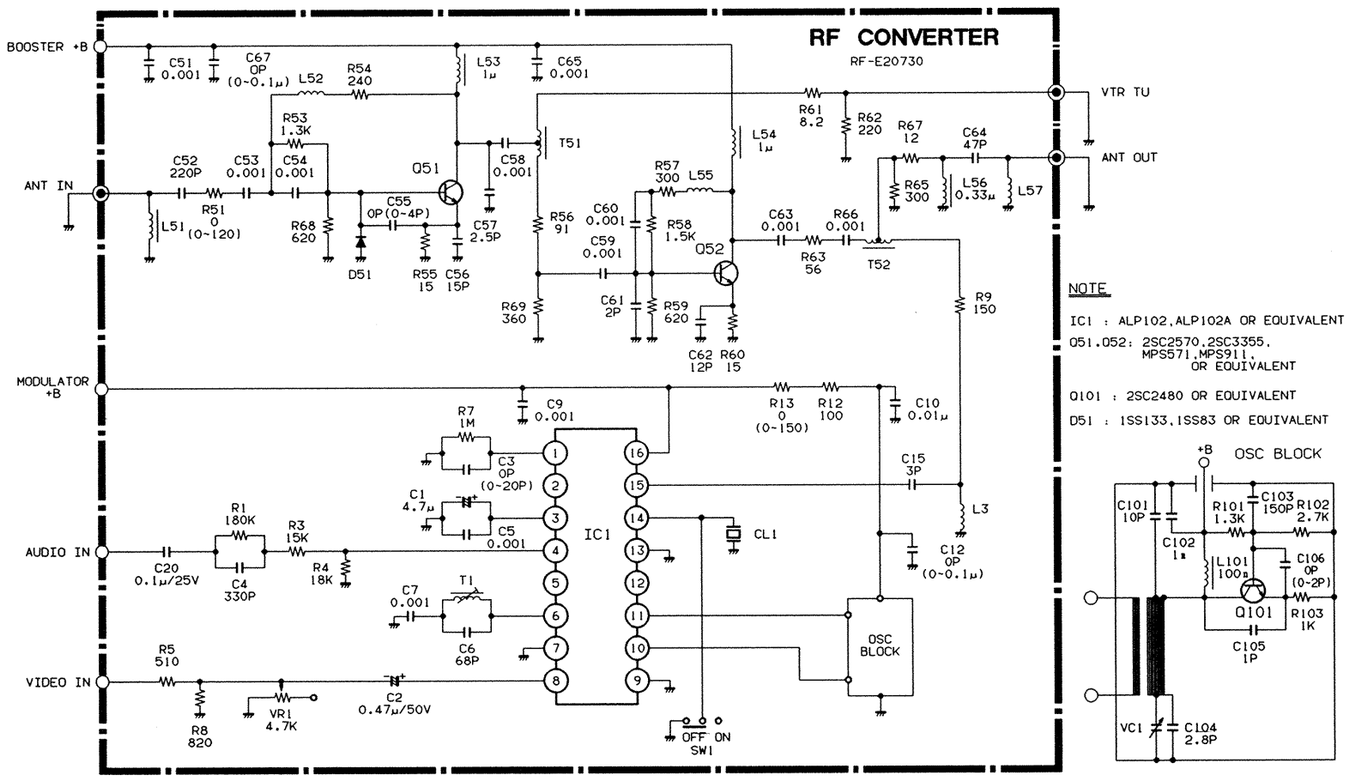


9-30. RF CONVERTER CIRCUIT DIAGRAM

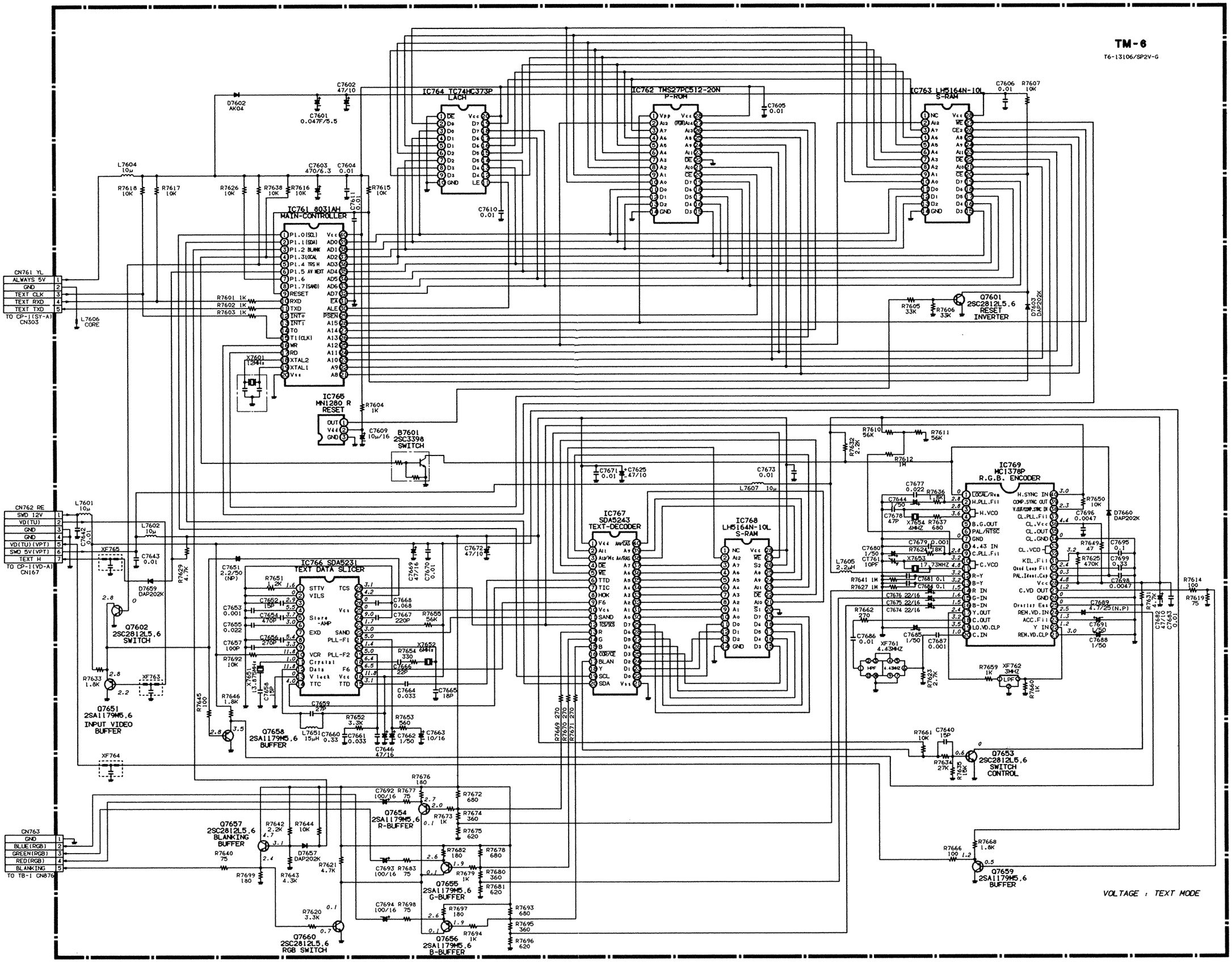


Note: Either one of these RF converters, type CDRF-E20570 or CDRF-E20730 is used, depending on availability.

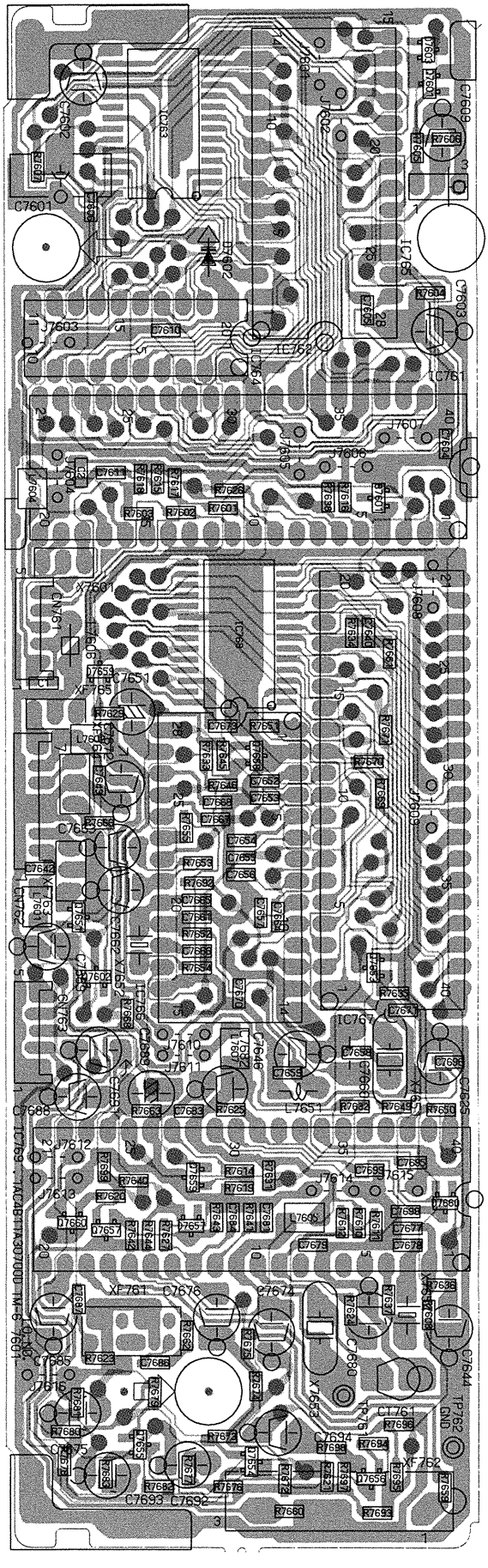
RF CONVERTER CIRCUIT DIAGRAM



9-31. TM-6 BOARD VIDEO TEXT DECODER (VPT) CIRCUIT DIAGRAM



9-32. TM-6 P.C.B.



NOTE: **BOTTOM SIDE FOIL**
TOP SIDE FOIL

9-33. IC301 SYSTEM CONTROL/TIMER/TUNING CONTROL MPU PIN FUNCTIONS TABLE

No.	Name	I/O	I/O Signal Function
1	T.END S.	I	Sensor signal input for tape end detection.
2	AV REF	I	Reference voltage input for internal A/D converter.
3	A-VDD	-	Power supply terminal for internal A/D converter.
4	VDD	-	IC power supply terminal.(5Vdc)
5	VDD	-	IC power supply terminal.(5Vdc)
6	X2	-	IC clock OSC terminal. Frequency is 6MHz.
7	X1	-	
8	IC	-	IC ground terminal.
9	XT2	-	Clock OSC for when power failure condition.
10	XT1	-	Frequency is 32.672kHz.
11	VSS	-	Ground terminal
12	BG / L	O	TV system (PAL BG or SECAM L) selection signal.
13	VD MUTE	O	"H" output during TU video mute.
14	AD MUTE	O	"H" output during TU audio mute.
15	MC-BR	O	Brake signal for capstan motor.
16	ML-F	O	Loading motor rotation direction (FWD) indication signal.
17	ML-R	O	Loading motor rotation direction (REV) indication signal.
18	ML-L	O	Loading motor rotation speed (low speed) indication signal.
19	ML-M	O	Loading motor rotation speed (medium speed) indication signal.
20	SEG p	O	Display segment outputs (FLD). (Included key-scan output)
21	SEG o	O	
22	SEG n	O	
23	SEG m	O	
24	SEG l	O	
25	SEG k	O	
26	SEG j	O	
27	SEG i	O	
28	SEG h	O	
29	SEG g	O	
30	VDD	-	IC power supply input.(5Vdc)
31	V LOAD	O	-23V input for FLD drive.
32	SEG f	O	Display segment outputs (FLD). (Incloded key-scan output)
33	SEG e	O	
34	SEG d	O	
35	SEG c	O	
36	SEG b	O	
37	SEG a	O	
38	-	-	
39	G9	O	Display grid outputs (FLD).
40	G8	O	
41	G7	O	
42	G6	O	
43	G5	O	
44	G4	O	
45	G3	O	
46	G2	O	
47	G1	O	
48	VDD	-	IC power supply input.(5Vdc)
49	0/1 DATA	I	CTL pulse duty detection signal input. Used for VISS detection.
50	SV S DATA	O	Output 8-bit X 4 serial data giving operation mode and tracking data,etc., to digital servo IC.
51	SV S CLK	O	CLK is its clock pulse.
52	PLL CS	O	Chip enable (access) signal output to PLL tuning system IC.

No.	Name	I/O	I/O Signal Function
53	KEY IN 3	I	Operation key data inputs.
54	KEY IN 2	I	
55	KEY IN 1	I	
56	KEY IN 0	I	
57	I2C SDA	I/O	Data exchange with the VPS decoder IC.
58	FF+REW	O	Signal indicating FF or REW mode.
59	-	-	
60	VPT DATA IN	I	Data input terminal for VIDEOTEXT decoder IC.
61	E2PROM CS	O	E2PROM access (enable) signal output.
62	CH+	O	CH+ control signal output.
63	VPT DATA OUT	O	Data output terminal for VIDEOTEXT decoder IC.
64	VPT CLK	O	Clock signal output to VIDEOTEXT decoder IC.
65	VSS	-	IC ground terminal.
66	T.REEL P.	I	Pulse input for detection of take-up reel table rotation.
67	SW DATA 2	I	3-bit data indicating operation position of mechanism.
68	SW DATA 1	I	
69	SW DATA 0	I	
70	PB H	O	Signal indicating playback mode.
71	AD MUTE	O	Signal disable audio signal output.
72	REC H	O	Signal indicating recording mode.
73	DOC OFF	O	Drop out pulse width selection signal output to DOC detection circuit.
74	INPUT SEL.	O	Signal for selecting video/audio input signal.
75	AV CTL	O	AV terminal (pin8 of 21pin AV socket) control signal output.
76	POWER UP	O	"HIGH" output except when power is off. Indicating that power is ON.
77	4k-PWM	O	Output 4kHz PWM signal for set period at start of high-speed FF/REW.
78	H.SYNC	I	Sync. detection signal input for existing channel discrimination.
79	C-FG P.	I	FG signal input of capstan motor.
80	CTL P.	I	CTL head recording/playback pulse signal input.
81	REMOCON	I	Remote control signal input.
82	FL-START SW	I	Switch input indicating start of cassette loading or discharge by cassette mechanism.
83	COMMON DATA	I/O	Terminal for communication of respective data with E2PROM IC, OSD IC and tuning PLL IC.
84	COMMON CLK	O	The clock pulse is output from this microprocessor.
85	RF SW P.	I	Input of RF switching pulse created by head drum PG.
86	RESET	-	Initial reset terminal for this IC.
87	A-VSS	-	Ground terminal for internal A/D converter.
88	POWER DOWN	I	Power failure detection terminal.
89	TAPE SPEED	I	Input of result of tape speed discrimination by digital servo IC.
90	ENV.	I	Video head envelope detection signal input for ATR function.
91	SAFETY SW	I	Input terminal for accidental erasur prevention switch. No operation to recording mode while "LOW" is input.
92	AFT-C	I	Tuner AFT s-curve signal input for tuner AFT function.
93	DEW S.	I	Dew sensor input terminal.
94	T.TOP S.	I	Sensor signal input for tape beginning detection.

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